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OW protein - protein search, using sw model

Run on: June 10, 2002, 10:23:07 ; Search time 55.16 Seconds
(without alignments)
388.637 Million cell updates/sec

Title: US-09-155-327E-7
Perfect score: 1007
Sequence: 1 MATPASADPTALVADEVGY.....LTGAVALGALVTGAFRASK 193

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 747574 seqs, 111073796 residues
Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_032802.*
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Prod. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Match	Length	DB	ID	Description
1	1007	100.0	193	20	AAV05530	Human Bcl-w protei
2	1002	99.5	193	19	AAW61392	Human bcl-y protei
3	1002	99.5	193	20	AAW67392	The human bcl-y pr
4	1000	99.3	193	18	AAW35047	Human bcl-w protei
5	1000	99.3	193	20	AAV05531	Mouse Bcl-w protei
6	1000	99.3	193	20	AAV05532	Human Bcl-w protei
7	997	99.0	192	20	AAW67394	Mammalian bcl-y pr
8	996	98.9	193	19	AAW61391	Rat bcl-y protein.
9	996	98.9	193	20	AAW67391	The rat bcl-y prot
10	991	98.4	192	20	AAW67393	Protein sequence o
11	958.5	95.2	192	20	AAV05533	Mouse Bcl-w protei

12	867	86.1	168	18	AAW36048	Mouse bcl-w protei
13	766	76.1	365	19	AAW59884	Amino acid sequenc
14	433.5	43.0	411	22	AAU00219	Bcl-XL-PFR apoptos
15	428.5	42.6	233	16	AAW68887	Human thymus BCL-X
16	428.5	42.6	233	17	AAW05821	Bcl-XL protein. H
17	428.5	42.6	233	18	AAW31530	Human anti-apoptot
18	428.5	42.6	233	17	AAW31530	Bcl-x polypeptide.
19	428.5	42.6	233	21	AAV69969	Human Bcl-XL prote
20	428.5	42.6	233	22	AAW64262	Human Bcl-XL prote
21	428.5	42.6	233	22	AAW73303	Rat wild-type Bcl-
22	428.5	42.6	233	22	AAW50538	Human Bcl-XL prote
23	428.5	42.6	233	22	AAW47515	Protein encoded by
24	425	42.2	225	18	AAW19396	"Depenyl" (RTM)-1
25	424.5	42.2	233	22	AAW73304	Mutant rat Bcl-XL
26	416.5	41.4	233	22	AAW64037	Human Bcl-2 protei
27	413	41.0	236	22	AAW35131	Murine Bcl-2. Mus
28	412.5	41.0	239	20	AAW87810	A human Bcl-2 prot
29	412.5	41.0	239	22	AAW74127	Human Bcl-2. Homo
30	412.5	41.0	239	22	AAW35130	Sequence of bcl-2-
31	410.5	40.8	239	9	AAW80987	Human Bcl-2. Homo
32	410.5	40.8	239	14	AAW42312	Bcl-2 oncogene pro
33	410.5	40.8	239	16	AAW70331	Human bcl-2 alpha
34	410.5	40.8	239	16	AAW71404	Human bcl-2. Homo
35	410.5	40.8	239	19	AAW40217	Human Bcl-2-alph
36	410.5	40.8	239	20	AAW87812	Human Bcl-2 protei
37	410.5	40.8	239	22	AAW08573	Human Bcl-2 protei
38	410.5	40.8	239	22	AAW64035	Human Bcl-2 protei
39	410.5	40.8	239	22	AAW64036	Human Bcl-2 protei
40	410.5	40.8	239	22	AAW74129	Human bcl-2alpha.
41	410.5	40.8	239	22	AAW48288	Human Bcl-2 protei
42	410.5	40.8	239	22	AAW50537	Human Bcl-2 protei
43	410.5	40.8	272	19	AAW21120	Human Bcl2 proto-o
44	410.5	40.8	485	22	AAU00222	Lfn-Bcl-XL apoptos
45	409	40.6	232	17	AAW01019	Apoptosis-blocking

ALIGNMENTS

RESULT 1
AAV05530 standard; protein; 193 AA.
XX AAV05530:
XX 05-JUL-1999 (first entry)
XX
XX Human Bcl-w protein essential for spermatogenesis.
XX
XX Spermatogenesis; Bcl-3; Bcl-2; human; fertility; infertility;
XX animal model.
XX KW
XX OS
XX Homo sapiens.
XX
XX W09913710-A1.
XX
XX 25-MAR-1999.
XX
XX 16-SEP-1998; 98WO-AU00764.
XX
XX 16-SEP-1997; 97AU-0009228.
XX
XX (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.
XX
XX Adams J, Cory S, Gibson L, Keontgen F, Print C;
XX WPI: 1999-243890/20.
XX N-PSDB: AAX25132.
XX
XX An animal model exhibiting reduced levels of a Bcl-w protein and/or
XX protein associated with Bcl-w
XX
XX Claim 2; Page 33; 52pp; English.
XX PS

XX The present sequence is human Bcl-w, a pro-survival member of the
 CC Bcl-2 family which is widely expressed and which is essential for
 CC spermatogenesis. The invention relates generally to a method of
 CC treatment and to an animal model for the identification of
 CC molecules and genetic sequences useful for inducing or reducing
 CC fertility of male animals. Methods are provided for the treatment
 CC of infertility, or for reducing fertility, by modulating
 CC spermatogenesis. An animal model carries a mutation is at least
 CC one allele of the human or murine bcl-w gene (see AXX25132-35) or in
 CC a gene associated with bcl-w. Such animals have disorganized
 CC seminiferous tubules and are substantially infertile, but possess no
 CC other major abnormalities as determined by histological examination.
 CC They can be used to screen for therapeutic molecules including
 CC genetic sequences capable of inducing, enhancing or otherwise
 CC facilitating spermatogenesis in animals, or which can induce
 CC infertility.

SO Sequence 193 AA:

Query Match 100.0%; Score 1007; DB 20; Length 193;
 Best Local Similarity 100.0%; Pred. No. 2.6e-103;
 Matches 193; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MATPASAPDTRALVADPVGKLRQKGYCGAGCGEPPADPLHQAMRAAGDEFTRRRRT 60
 Db 1 matpasapdtralvadpvgklyrkqgyvcgagpgepaadplhqamraagdeftrrrt 60
 QY 61 FSDLAQOLHVTGPGSAQORFTQVSDLEFQGGPMMGRRLVAFVFGALCAESVNMKEPVLG 120
 Db 61 fsdlaqlhvtgpgsaqrftqvsdelifqgppmwrilvafvfgaalcaesvnmkepvlv 120
 QY 121 QVQEMWVAVLETRLDWTHSSGMAEFPTALYGDGALBEARRLREGNMAVSVTVLTGAVAL 180
 Db 121 qvqemwvavletrldwthssgmaeftalygdgaleearrlregnmasvrtvltgaval 180
 QY 181 GALVTGAFEFASK 193
 Db 181 galvtvgafefask 193

RESULT 2
 ID AAM61392
 XX AAM61392 standard; Protein: 193 AA.

AC AAM61392;
 XX
 DT 02-OCT-1998 (first entry)
 XX
 DE Human bcl-y protein.
 XX
 KW bcl-y; bcl-2; cell death pathway; apoptotic; apoptosis; human.
 XX
 OS Homo sapiens.
 XX
 PN US5789201-A.
 XX
 PD 04-AUG-1998.
 XX
 PF 11-FEB-1997; 97US-0798897.
 XX
 PR 23-FEB-1996; 96US-0012201.
 PR 11-FEB-1997; 97US-0798897.
 XX
 PA (COCE-) COCENSYS INC.
 XX
 PI Guastella J;
 XX
 DR WPI; 1998-446079/38.
 DR N-PSDB; AAV28334.
 XX
 PT Nucleic acids encoding B-cell lymphoma-y protein - useful for

PT producing recombinant protein for use in treating uncontrolled cell
 PT growth e.g. cancers
 XX
 PS Example; Column 17/18; 27pp; English.

CC The mammalian bcl-y protein is a member of the bcl-2 family, components
 CC in the cell death pathway. The bcl-2 family have both apoptotic activity
 CC and the apoptosis blocking activity. bcl-y falls in the apoptosis
 CC activity category. The recombinant protein may be used to prevent
 CC uncontrolled cell growth, either by its direct administration to
 CC recombinant genetic constructs to increase its expression in vivo. Also,
 CC antisense constructs can be used in disorders where prevention of cell
 CC death is desired.

SO Sequence 193 AA:

Query Match 99.5%; Score 1002; DB 19; Length 193;
 Best Local Similarity 99.5%; Pred. No. 9.3e-103;
 Matches 192; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 MATPASAPDTRALVADPVGKLRQKGYCGAGCGEPPADPLHQAMRAAGDEFTRRRRT 60
 Db 1 matpasapdtralvadpvgklyrkqgyvcgagpgepaadplhqamraagdeftrrrt 60
 QY 61 FSDLAQOLHVTGPGSAQORFTQVSDLEFQGGPMMGRRLVAFVFGALCAESVNMKEPVLG 120
 Db 61 fsdlaqlhvtgpgsaqrftqvsdelifqgppmwrilvafvfgaalcaesvnmkepvlv 120
 QY 121 QVQEMWVAVLETRLDWTHSSGMAEFPTALYGDGALBEARRLREGNMAVSVTVLTGAVAL 180
 Db 121 qvqemwvavletrldwthssgmaeftalygdgaleearrlregnmasvrtvltgaval 180
 QY 181 GALVTGAFEFASK 193
 Db 181 galvtvgafefask 193

RESULT 3
 ID AAM97392
 XX AAM97392 standard; Protein: 193 AA.

AC AAM97392;
 XX
 DT 20-MAY-1999 (first entry)
 XX
 DE The human bcl-y protein.
 XX
 KW Rat bcl-y protein; Rbcl-y; human bcl-y protein; Hbcl-y; bcl-2 homologue;
 KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
 KW head trauma; Alzheimer's Disease; neural; muscular degenerative disease;
 KW multiple sclerosis; myocardial infarction; vitally induced cell death;
 KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
 KW premature cell death; cell death stimulator; prolonged cell life span;
 KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
 KW parasite.
 XX
 OS Homo sapiens.
 XX
 PN US5883229-A.
 XX
 PD 16-MAR-1999.
 XX
 PF 25-NOV-1997; 97US-0978523.
 XX
 PR 23-FEB-1996; 96US-0012201.
 PR 11-FEB-1997; 97US-0798897.
 PR 25-NOV-1997; 97US-0978523.
 XX
 PA (COCE-) COCENSYS INC.
 XX
 PI Guastella J;
 XX

DR WPI: 1999-214150/18.
DR N-PSDB; AAX15946.

PT Novel bcl-y homologues of the rat and human bcl-2 protein - useful
for modulating programmed cell death

PS Claim 1; Columns 17-18; 26pp; English.

XX The present sequence represents human bcl-y protein (Hbcl-y). The
CC specification also describes rat bcl-y protein (Rbcl-y). Rbcl-y and
CC Hbcl-y are homologues of the bcl-2 protein thought to be involved in
CC programmed cell death (apoptosis and necrosis). Rbcl-y and Hbcl-y
CC proteins may be used to treat conditions associated with a disruption of
CC the cell death pathway. If they act as cell death inhibitors, they may be
CC used in the therapies to treat subjects suffering from: strokes, head trauma,
CC Alzheimer's disease, neural and muscular degenerative diseases
CC (especially multiple sclerosis), myocardial infarction, vitally induced
CC cell death, aging, spinal cord injuries and amyotrophic lateral
CC sclerosis- conditions where cells under go premature cell death as a
CC result of triggers which may or may not be apparent. They may also be
CC used in this way to develop cell lines which remain viable in culture, for
CC an extended period. In contrast, if they act as cell death stimulators,
CC Rbcl-y and Hbcl-y may be used to treat conditions associated with
CC prolonged cell life span such as cancer (especially Kaposi's sarcoma and
CC lung cancer) and auto/hyperimmune diseases. They may also be used to
CC cause cell death in, and hence control, parasites.

XX Sequence 193 AA:

Query Match 99.5%; Score 1002; DB 20; Length 193;
Best Local Similarity 99.5%; Pred. No. 9, 3e-103;
Matches 192; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 MATPASAPDTRALVADVFVGYKLRQKGYVCGAGPGEGPADPLHQAMRAAGDEFETRFRRT 60
DB 1 matpasapdtralvadvfygklyrqkyvvcgagpgspadplhqamraagdefetrfrt 60
OY 61 FSDLAQLHVTGSAQORFTQVSDLEFQGGPNMGRLVAFVFGAALCAESVKNKEMPLVG 120
DB 61 fsdlaqlhvtgpgsaqrftqvdsdelfqggnmggrlvafvfgaalcaesvknkemplvg 120
OY 121 QVOEMWVAVLETRLADWTHSSGCAEFTALYGDALAEARRLREGMWASVRYVLTGAVAL 180
DB 121 qvemwvavyletrldwthssgcaeftalygdalaearrlregmwasyrvltgaval 180
OY 181 GALVTGAFVASK 193
DB 181 galvtvgafvask 193

RESULT 4

AAM36047
ID AAM36047 standard; Protein; 193 AA.

XX AAM36047;

DT 22-APR-1998 (first entry)

XX Human bcl-w protein.

XX Bcl-w; apoptosis; bcl-2; cell survival; treatment; therapy; cancer;
KW diagnosis; degenerative disease.

OS Homo sapiens.

XX W09735971-A1.

XX 02-OCT-1997.

XX 27-MAR-1997; 97WO-AU00199.

XX 27-MAR-1996; 96AU-0008965.

XX (AMRA-) AMRAD OPERATIONS PTV LTD.

PI Adams JM, Cory S, Gibson LM, Holmgren SP;

XX WPI: 1997-489635/45.

DR N-PSDB; AAT96577.

PT Nucleic acid encoding apoptosis related gene bcl-w - used to induce
PT or inhibit cell survival, e.g. for treatment of cancer and
PT degenerative diseases

PS Claim 6; Page 48; 86pp; English.

XX This sequence represents a novel human protein, bcl-w, encoded by the
CC bcl-2 gene family and extracted from an adult brain library. This gene
CC promotes cell survival, so its modulation is useful in treatment of
CC cancer or auto-immune diseases, degenerative diseases (e.g. stroke,
CC Alzheimer's disease, myocardial infarct, muscular degeneration, hypoxia,
CC ischaemia, human immunodeficiency virus infection or in cell transplants.
CC Up-regulation of the gene can also be used to modify cell lines cultured
CC in vivo, e.g. to develop new lines, to facilitate isolation of hybridomas
CC and to increase survival of primary explants during genetic modification.
CC It can be used to produce recombinant Bcl-w for therapy, diagnosis,
CC antibody production or screening of potential modulators.

XX Sequence 193 AA:

Query Match 99.3%; Score 1000; DB 18; Length 193;
Best Local Similarity 99.0%; Pred. No. 1, 6e-102;
Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

OY 1 MATPASAPDTRALVADVFVGYKLRQKGYVCGAGPGEGPADPLHQAMRAAGDEFETRFRRT 60
DB 1 matpasapdtralvadvfygklyrqkyvvcgagpgspadplhqamraagdefetrfrt 60
OY 61 FSDLAQLHVTGSAQORFTQVSDLEFQGGPNMGRLVAFVFGAALCAESVKNKEMPLVG 120
DB 61 fsdlaqlhvtgpgsaqrftqvdsdelfqggnmggrlvafvfgaalcaesvknkemplvg 120
OY 121 QVOEMWVAVLETRLADWTHSSGCAEFTALYGDALAEARRLREGMWASVRYVLTGAVAL 180
DB 121 qvemwvavyletrldwthssgcaeftalygdalaearrlregmwasyrvltgaval 180
OY 181 GALVTGAFVASK 193
DB 181 galvtvgafvask 193

RESULT 5

AAY05531
ID AAY05531 standard; Protein; 193 AA.

XX AAY05531;

DT 05-JUL-1999 (first entry)

XX Mouse Bcl-w protein essential for spermatogenesis.

XX Spermatogenesis; Bcl-3; Bcl-2; mouse; fertility; infertility;
KW animal model.

OS Mus sp.

XX W09913710-A1.

XX 25-MAR-1999.

XX 16-SEP-1998; 98WO-AU00764.

XX 16-SEP-1997; 97AU-0009228.

PA (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.

XX Adams J, Cory S, Gibson L, Koentgen F, Print C;

XX WPI: 1999-243890/20.

DR N-PSDB: AAX25133.

PT An animal model exhibiting reduced levels of a Bcl-w protein and/or
protein associated with Bcl-w

PS Claim 2; Page 35; 52pp: English.

CC The present sequence is mouse Bcl-w, a pro-survival member of the
CC Bcl-2 family which is widely expressed and which is essential for
CC spermatogenesis. The invention relates generally to a method of
CC treatment and to an animal model for the identification of
CC molecules and genetic sequences useful for inducing or reducing
CC fertility of male animals. Methods are provided for the treatment
CC of infertility, or for reducing fertility, by modulating
CC spermatogenesis. An animal model carries a mutation is at least
CC one allele of the human or murine bcl-w gene (see AAX25132-35) or in
CC a gene associated with bcl-w. Such animals have disorganised
CC seminiferous tubules and are substantially infertile, but possess no
CC other major abnormalities as determined by histological examination.
CC They can be used to screen for therapeutic molecules including
CC genetic sequences capable of inducing, enhancing or otherwise
CC facilitating spermatogenesis in animals, or which can induce
CC infertility.

XX Sequence 193 AA;

Query Match 99.3%; Score 1000; DB 20; Length 193;
Best Local Similarity 99.0%; Pred. No. 1.6e-102;
Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MATPASAPDTRALVADPVGKLRKGYCGAGPGEPPADPLHQAARAGDEPFRRT 60

Db 1 matpasapdtralvadpvgkirkqgyvgagpgpaadplhqaaragdeftfrtt 60

QY 61 FSDLAQLHVTGSAOQRTQVSDLEFQGGPNMGRLVAFVFGALCAESVNMKEPLYG 120

Db 61 fsdlaqlhvtglsaqrftqvsdelifgpgpnwgrlvafvfgalcaesvnmkemplyg 120

QY 121 QVOEMWVAAYLETRLDWTHSSGGAETALYGDALBARRLRGNMNAVRYVLGVAL 180

Db 121 qvgdmwvayletrladwlhssggaetalygdaleearlrignwasvrvltgaval 180

QY 181 GALVTGAFEFASK 193

Db 181 galvtgafefask 193

RESULT 6

AAW05532 ID AAW05532 standard; Protein; 193 AA.

XX AAW05532;

DT 05-JUL-1999 (first entry)

DE Human Bcl-w protein essential for spermatogenesis.

XX Spermatogenesis; Bcl-3; Bcl-2; human; fertility; infertility;
KW animal model.

XX Homo sapiens.

XX WO9913710-A1.

PD 25-MAR-1999.

PF 16-SEP-1998; 98WO-AU00764.

XX 16-SEP-1997; 97AU-0009228.

PA (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.

XX Adams J, Cory S, Gibson L, Koentgen F, Print C;

XX WPI: 1999-243890/20.

DR N-PSDB: AAX25134.

PT An animal model exhibiting reduced levels of a Bcl-w protein and/or
protein associated with Bcl-w

PS Disclosure; Page 37; 52pp: English.

CC The present sequence is described of a derivative of human Bcl-w
CC (see also AAW05530), a pro-survival member of the Bcl-2 family that
CC is widely expressed and which is essential for spermatogenesis.
CC The invention relates generally to a method of treatment and to an
CC animal model for the identification of molecules and genetic
CC sequences useful for inducing or reducing fertility of male animals.
CC Methods are provided for the treatment of infertility, or for
CC reducing fertility, by modulating spermatogenesis. An animal model
CC carries a mutation is at least one allele of the human or murine
CC bcl-w gene (see AAX25132-35) or in a gene associated with bcl-w.
CC Such animals have disorganised seminiferous tubules and are
CC substantially infertile, but possess no other major abnormalities
CC as determined by histological examination. They can be used to
CC screen for therapeutic molecules including genetic sequences
CC capable of inducing, enhancing or otherwise facilitating
CC spermatogenesis in animals, or which can induce infertility.

XX Sequence 193 AA;

Query Match 99.3%; Score 1000; DB 20; Length 193;
Best Local Similarity 99.0%; Pred. No. 1.6e-102;
Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MATPASAPDTRALVADPVGKLRKGYCGAGPGEPPADPLHQAARAGDEPFRRT 60

Db 1 matpasapdtralvadpvgkirkqgyvgagpgpaadplhqaaragdeftfrtt 60

QY 61 FSDLAQLHVTGSAOQRTQVSDLEFQGGPNMGRLVAFVFGALCAESVNMKEPLYG 120

Db 61 fsdlaqlhvtglsaqrftqvsdelifgpgpnwgrlvafvfgalcaesvnmkemplyg 120

QY 121 QVOEMWVAAYLETRLDWTHSSGGAETALYGDALBARRLRGNMNAVRYVLGVAL 180

Db 121 qvgdmwvayletrladwlhssggaetalygdaleearlrignwasvrvltgaval 180

QY 181 GALVTGAFEFASK 193

Db 181 galvtgafefask 193

RESULT 7

AAW97394 ID AAW97394 standard; Protein; 192 AA.

XX AAW97394;

DT 20-MAY-1999 (first entry)

DE Mammalian bcl-y protein.

XX Rat bcl-y protein; Rbcl-y; human bcl-y protein; Hbcl-y; bcl-2 homologue;

KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;

KW head trauma; Alzheimer's disease; neural; muscular degenerative disease;

KW multiple sclerosis; myocardial infarction; vitally induced cell death;

KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;

KW premature cell death; cell death stimulator; prolonged cell life span;

KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;

DE The rat bcl-y protein.

XX
XX Rat bcl-y protein; Rbcl-y; human bcl-y protein; Hbcl-y; bcl-2 homologue;
KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
KW head trauma; Alzheimer's Disease; neural; muscular degenerative disease;
KW multiple sclerosis; myocardial infarction; vitally induced cell death;
KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
KW premature cell death; cell death stimulator; prolonged cell life span;
KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
KW parasite.

XX Rattus sp.

XX US5883229-A.

XX 16-MAR-1999.

XX 25-NOV-1997; 97US-0978523.

XX 23-FEB-1996; 96US-0012201.

XX 11-FEB-1997; 97US-0798897.

XX 25-NOV-1997; 97US-0978523.

XX (COCE-) COCENSYS INC.

XX Guastella J;

XX WPI: 1999-214150/18.

XX N-PSDB: AAX15945.

XX Novel bcl-y homologues of the rat and human bcl-2 protein - useful

XX for modulating programmed cell death

XX Disclosure; Columns 15-18; 26pp; English.

XX The present sequence represents rat bcl-y protein (Rbcl-y). The
XX specification also describes human bcl-y protein (Hbcl-y). Rbcl-y and
XX Hbcl-y are homologues of the bcl-2 protein thought to be involved in
XX programmed cell death (apoptosis and necrosis). Rbcl-y and Hbcl-y
XX proteins may be used to treat conditions associated with a disruption of
XX the cell death pathway. If they act as cell death inhibitors, they may be
XX used in therapies to treat subjects suffering from: strokes, head trauma,
XX Alzheimer's Disease, neural and muscular degenerative diseases
XX (especially multiple sclerosis), myocardial infarction, vitally induced
XX cell death, aging, spinal cord injuries and amyotrophic lateral
XX sclerosis - conditions where cells under go premature cell death as a
XX result of triggers which may or may not be apparent. They may also be
XX used in this way to develop cell lines which remain viable in culture for
XX an extended period. In contrast, if they act as cell death stimulators,
XX Rbcl-y and Hbcl-y may be used to treat conditions associated with
XX prolonged cell life span such as cancer (especially Kaposi's sarcoma and
XX lung cancer) and auto/hyperimmune diseases. They may also be used to
XX cause cell death in, and hence control, parasites.

XX Sequence 193 AA;

Query Match 98.9%; Score 996; DB 20; Length 193;
Best Local Similarity 98.4%; Pred. No. 4.3e-102;

Matches 190; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 MATPASAPDTRALVADFGVYKLRQKGYVGAGPAGGSPADPRLHQMRAAGDEFERPRRT 60

DB 1 matpastpttralvadfgvyrkqrqgyvgagpaggpadpghqamraagdefetrtrt 60

QY 61 FSDLAQLHVTPEGSAQOQRTQVSDLEFQCGPMMGRVAFVFFGALCAESVNKEKEPLVG 120

DB 61 fslilaqlhvtpegsaqgrtqvsdelfqgppmvg-r-lvafvfgaalcaesvnrkemepivg 120

QY 121 QVQEWVAVLETRLDWHSISGGAEPFALYGDGALFEARKLRBGNMAVFTVLGAVNL 180

DB 121 qvqdwvavletrldwshsigsqgaefaltlygdgalearrlregnwavsvtlvtgaval 180

QY 181 GALVTGAFASK 193
DB 181 galvtvgafask 193

RESULT 10

ID AAM97393 standard; Protein; 192 AA.

AC AAM97393;

DE 20-MAR-1999 (first entry)

XX Protein sequence of the specification.

XX Rat bcl-y protein; Rbcl-y; human bcl-y protein; Hbcl-y; bcl-2 homologue;
KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
KW head trauma; Alzheimer's Disease; neural; muscular degenerative disease;
KW multiple sclerosis; myocardial infarction; vitally induced cell death;
KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
KW premature cell death; cell death stimulator; prolonged cell life span;
KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
KW parasite.

XX Unidentified.

XX US5883229-A.

XX 16-MAR-1999.

XX 25-NOV-1997; 97US-0978523.

XX 23-FEB-1996; 96US-0012201.

XX 11-FEB-1997; 97US-0798897.

XX 25-NOV-1997; 97US-0978523.

XX (COCE-) COCENSYS INC.

XX Guastella J;

XX WPI: 1999-214150/18.

XX Novel bcl-y homologues of the rat and human bcl-2 protein - useful

XX for modulating programmed cell death

XX Disclosure; Columns 19-20; 26pp; English.

XX The specification describes rat bcl-y protein (Rbcl-y) and human bcl-y
XX protein (Hbcl-y). Rbcl-y and Hbcl-y are homologues of the bcl-2 protein
XX thought to be involved in programmed cell death (apoptosis and necrosis).
XX Rbcl-y and Hbcl-y proteins may be used to treat conditions associated
XX with a disruption of the cell death pathway. If they act as cell death
XX inhibitors, they may be used in therapies to treat subjects suffering
XX from: strokes, head trauma, Alzheimer's Disease, neural and muscular
XX degenerative diseases (especially multiple sclerosis), myocardial
XX infarction, vitally induced cell death, aging, spinal cord injuries and
XX amyotrophic lateral sclerosis - conditions where cells under go premature
XX cell death as a result of triggers which may or may not be apparent.
XX They may also be used in this way to develop cell lines which remain
XX viable in culture for an extended period. In contrast, if they act as
XX cell death stimulators, Rbcl-y and Hbcl-y may be used to treat
XX conditions associated with prolonged cell life span such as cancer
XX (especially Kaposi's sarcoma and lung cancer) and auto/hyperimmune
XX diseases. They may also be used to cause cell death in, and hence
XX control, parasites.

XX Sequence 192 AA;

Query Match 98.4%; Score 991; DB 20; Length 192;
Best Local Similarity 98.4%; Pred. No. 1.5e-101;

Matches 189; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Query Match 95.2%; Score 958.5; DB 20; Length 192;
 Best Local Similarity 94.8%; Pred. No. 6.1e-98;
 Matches 183; Conservative 6; Mismatches 3; Indels 1; Gaps 1;

QY 2 ATPASAPDTRALVADVFVGYKLRQKGYVCGAGPGGPAADPLHQAMRAAGDEFETRRFRRT 61
 DB 1 atcpasdpdtralvadvfgyklrqkgyvcagpggpaadplhqamraagdefetrrfrtf 60

QY 62 SDIAAQLHVTPTGSAQGRFTVOVSDELFOGSPNMGRLVAFVFGAALCAESVKNKEPVLVQ 121
 DB 61 sdiiaqlhvtptgsaqgrftvovsdelfggspnmgrlvafvfgaalcaesvknkemplvq 120

QY 122 VQEMMVAYLETRLADMIHSSGMAEFTALYGDALAEARLRREGNMASVRYTLTGAVALG 181
 DB 121 vqemmvayletrladmihsaggmaeftalygdalaearlrregnmavsrvtltgavalg 180

QY 182 ALVTGAFEFASK 193
 DB 181 alvtvgaffask 192

RESULT 11
 AAY05533
 ID AAY05533 standard; Protein; 192 AA.
 AC AAY05533;
 DT 05-JUL-1999 (first entry)
 DE Mouse Bcl-w protein derivative.
 DE Spermatogenesis; Bcl-3; Bcl-2; mouse; fertility; infertility;
 KW animal model.
 OS Mus sp.
 PN W09913710-A1.
 PD 25-MAR-1999.
 PF 16-SEP-1998; 98WO-AU00764.
 PR 16-SEP-1997; 97AU-0009228.
 PA (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.
 PI Adams J, Cory S, Gibson L, Koentgen F, Print C;
 DR WPI, 1999-243890/20.
 DR N-PSDB; AAX25135.
 PT An animal model exhibiting reduced levels of a Bcl-w protein and/or
 PT protein associated with Bcl-w
 PS Disclosure: Page 39; 52pp; English.
 XX The present sequence is described of a derivative of mouse Bcl-w
 XX (see also AAY05531), a pro-survival member of the Bcl-2 family that
 XX is widely expressed and which is essential for spermatogenesis.
 XX The derivative lacks the 24 N-terminal amino acids of Bcl-w.
 XX The invention relates generally to a method of treatment and to an
 XX animal model for the identification of molecules and genetic
 XX sequences useful for inducing or reducing fertility of male animals.
 XX Methods are provided for the treatment of infertility, or for
 XX reducing fertility, by modulating spermatogenesis. An animal model
 XX carries a mutation is at least one allele of the human or murine
 XX bcl-w gene (see AAX25132-35) or in a gene associated with bcl-w.
 XX Such animals have disorganised seminiferous tubules and are
 XX substantially infertile, but possess no other major abnormalities
 XX as determined by histological examination. They can be used to
 XX screen for therapeutic molecules including genetic sequences
 XX capable of inducing, enhancing or otherwise facilitating
 XX spermatogenesis in animals, or which can induce infertility.
 SQ Sequence 192 AA;

Query Match 95.2%; Score 958.5; DB 20; Length 192;
 Best Local Similarity 94.8%; Pred. No. 6.1e-98;
 Matches 183; Conservative 6; Mismatches 3; Indels 1; Gaps 1;

QY 1 MATPASAPDTRALVADVFVGYKLRQKGYVCGAGPGGPAADPLHQAMRAAGDEFETRRFRRT 60
 DB 1 mtpasdpdtralvadvfgyklrqkgyvcagpggpaadplhqamraagdefetrrfrtf 60

QY 61 FSDIAAQLHVTPTGSAQGRFTVOVSDELFOGSPNMGRLVAFVFGAALCAESVKNKEPVLVQ 120
 DB 61 fsdiiaqlhvtptgsaqgrftvovsdelfggspnmgrlvafvfgaalcaesvknkemplvq 120

QY 121 VQEMMVAYLETRLADMIHSSGMAEFTALYGDALAEARLRREGNMASVRYTLTGAVALG 180
 DB 121 vqemmvayletrladmihsaggmaeftalygdalaearlrregnmavsrvtltgavalg 179

QY 181 GALVTGAFEFASK 193
 DB 180 galvtvgaffask 192

RESULT 12
 AAM36048
 ID AAM36048 standard; Protein; 168 AA.
 AC AAM36048;
 DT 22-APR-1998 (first entry)
 DE Mouse bcl-w protein.
 DE Bcl-w; apoptosis; bcl-2; cell survival; treatment; therapy; cancer;
 DE diagnosis; degenerative disease.
 OS Mus sp.
 PN W09735971-A1.
 PD 02-OCT-1997.
 PF 27-MAR-1997; 97WO-AU00199.
 PR 27-MAR-1996; 96AU-0008965.
 PA (AMRA-) AMRAD OPERATIONS PTY LTD.
 PI Adams JM, Cory S, Gibson LM, Holmgren SP;
 DR WPI, 1997-489635/45.
 DR N-PSDB; AAT96578.
 PT Nucleic acid encoding apoptosis related gene bcl-w - used to induce
 PT or inhibit cell survival, e.g. for treatment of cancer and
 PT degenerative diseases
 PS Claim 6; Page 50-51; 86pp; English.
 XX This sequence represents a novel protein, bcl-w, encoded by the mouse
 XX bcl-2 gene family. This gene promotes cell survival, so its modulation
 XX is useful in treatment of cancer or auto-immune diseases, degenerative
 XX diseases (e.g. stroke, Alzheimer's disease, myocardial infarct, muscular
 XX degeneration, hypoxia, ischaemia, human immunodeficiency virus infection
 XX or in cell transplants. Up-regulation of the gene can also be used to
 XX modify cell lines cultured in vivo, e.g. to develop new lines, to
 XX facilitate isolation of hybridomas and to increase survival of primary
 XX explants during genetic modification. It can be used to produce
 XX recombinant Bcl-w for therapy, diagnosis, antibody production or
 XX screening of potential modulators.
 SQ Sequence 168 AA;

Query Match 86.1%; Score 867; DB 18; Length 168;

Best Local Similarity 95.8%; Pred. No. 7e-88;
Matches 161; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

QY 1 MATPASADPTALVADVFYGYKLIRKGYVCGAGPGSPAAQPLHQAMAAAGDEFETRFRFT 60
Db 1 mptpsptdtrtalvadfygylrlrkgyvccgagpgspaaqplhqamaaagdefetrfrft 60

QY 61 FSDLAAGLHVTTPGSAQOQRTFVSDELFOGPGPMGRLVAFVFGAALCAESVKNKEMEPVVG 120
Db 61 fsdlaaglhvtpgsaqgrftqvsdelifggpnmgrlvafvfgaalcaesvknkemeplyg 120

QY 121 QVQEMWVAYLETRLADWTHSSGGAFTALYGCALFEARLRKGMWA 168
Db 121 qvqemwvayletrladwthssggaftalygcaldedarrlrkgnwa 168

RESULT 13
AAM59884
ID AAM59884 standard; Protein; 365 AA.
AC AAM59884;
XX
XX 20-NOV-1998 (first entry)
DT
XX Amino acid sequence of the cDNA clone Bcl-1 like (HAICH29).
DE
XX Bcl-1 like (HAICH29); chronic inflammatory disease; allergic reaction;
KW immunological disorder; autoimmune disease; anti-infectious agent.
KM
XX Homo sapiens.
OS
XX WO831800-A2.
PN
XX 23-JUL-1998.
PD
XX 21-JAN-1998; 98WO-US00960.
PF
XX 21-JAN-1997; 97US-0034205.
PR
XX 21-JAN-1997; 97US-0034204.
XX
XX (AUCK-) AUCKLAND UNISERVICES LTD.
PA (HUMA-) HUMAN GENOME SCI INC.
XX
XX Feng P, Gentz RL, Krissansen GW, Ni J, Rosen CA;
PI Su JY;
PT
XX WPI; 1998-41409/35.
DR N-PSDB; AAV41925.
XX
XX New isolated polynucleotides and encoded polypeptides - used to
PT develop products for treating e.g. inflammatory diseases,
PT infections, immunological disorders, autoimmune diseases, allergies
XX or tumours
XX
XX Claim 1; Fig 12A-12D; 120pp; English.
PS
XX This is the amino acid sequence of the cDNA clone Bcl-1 like (HAICH29),
CC used in the method of the invention. The products of the clone can be
CC used for treating conditions associated with abnormal expression of
CC the polypeptides. They can be used for e.g. treating chronic
CC inflammatory diseases, immunological disorders, autoimmune diseases,
CC inflammatory diseases, various allergies, and as anti-infectious agents.
CC The products can also be used for detection and diagnosis.
XX
XX Sequence 365 AA;

QY 1 MATPASADPTALVADVFYGYKLIRKGYVCGAGPGSPAAQPLHQAMAAAGDEFETRFRFT 60
Matches 144; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 1 matpasadptalvadfygylrkgyvccgagpgspaaqplhqamaaagdefetrfrft 60

QY 61 FSDLAAGLHVTTPGSAQOQRTFVSDELFOGPGPMGRLVAFVFGAALCAESVKNKEMEPVVG 120
Db 61 fsdlaaglhvtpgsaqgrftqvsdelifggpnmgrlvafvfgaalcaesvknkemeplyg 120

QY 121 QVQEMWVAYLETRLADWTHSSGGAFTALYGCALFEARLRKGMWA 144
Db 121 qvqemwvayletrladwthssggaftalygcaldedarrlrkgnwa 144

RESULT 14
AAU00219
ID AAU00219 standard; Protein; 411 AA.
AC AAU00219;
XX
XX 31-MAY-2001 (first entry)
DT
XX Bcl-XL-DTR apoptosis-modifying fusion protein.
DE
XX
XX Human; Bcl-XL-DTR; apoptosis; cancer; spinal muscular atrophy;
KW diphtheria toxin receptor binding domain; DTR; neoplasm; tumour;
KW hyper-proliferation; Alzheimer's disease; neurodegenerative disorder;
KW transient ischaemic neuronal injury; stroke; spinal cord injury;
KW Huntington's disease.
XX
XX Chimeric - Homo sapiens.
OS Chimeric - Corynebacterium diphtheriae.
OS Chimeric - Synthetic.
XX
XX Key Location/Qualifiers
FH Region 3..12
FT /note="10x histidine tag"
FT 21..253
FT /note="Bcl-XL amino acids 1 to 233"
FT 254..259
FT /note="Linker amino acids, linking Bcl-XL to diphtheria
FT toxin receptor binding domain (DTR)"
FT Domain 260..411
XX /note="DTR, diphtheria toxin receptor binding domain"
XX
XX WO200112661-A2.
PN
XX 22-FEB-2001.
PD
XX 15-AUG-2000; 2000WO-US22293.
PF
XX 16-AUG-1999; 99US-0149220.
PR
XX (HARD) HARVARD COLLEGE.
PA (USSH) US DEPT HEALTH & HUMAN SERVICES.
XX
XX Youle RJ, Liu X, Collier RJ;
PI
XX WPI; 2001-218343/22.
DR N-PSDB; AAS00247.
XX
XX Novel fusion protein for modifying apoptosis in target cell and
PT reducing apoptosis after transient ischemic neuronal injury, has two
PT domains which targets protein to a cell and modifies apoptotic response
PT of cell
XX
XX Claim 4; Page 56-57; 65pp; English.
PS
XX The sequence represents the amino acid sequence of Bcl-XL-DTR apoptosis-
CC modifying fusion protein comprising Bcl-XL sequence fused via a short
CC linker to diphtheria toxin receptor binding domain (DTR). The functional
CC apoptosis-modifying fusion protein is capable of binding a target cell
CC and integrating into or crossing a cellular membrane of the target cell,
CC comprising at least two domains, one of which targets the fusion protein
CC to the target cell and another of which modifies an apoptotic response of
CC the target cell. The fusion protein is useful for modifying (inhibiting

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OM protein - protein search, using sw model

Run on: June 10, 2002, 10:23:32 ; Search time 28.15 Seconds
(without alignments)
658,801 Million cell updates/sec

Title: US-09-155-327e-7

Perfect score: 1007
Sequence: 1 MATPASAPDTRALVADPVG.....LTGAVLALGVTCGAFASK 193

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

1: PIR-71:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	428.5	42.6	233	2	149056 bcl-x long - mouse
2	428.5	42.6	233	2	847537 apoptosis regulato
3	424.5	42.2	233	2	551761 BCL-X protein - ra
4	423.5	42.1	233	2	A37332 transforming prote
5	414	41.1	232	1	S24390 transforming prote
6	412.5	41.0	239	1	TVHUA1 BCL-2 - rat (fragm
7	412	40.9	236	2	167432 gene bcl-2 protein
8	407	40.4	236	2	153744 transforming prote
9	406	40.3	236	1	TVMSA1 BCL-X-Long - rat
10	404.5	40.2	233	2	167431 B-cell lymphoma 2
11	403	40.0	236	2	UC7383 apoptosis regulato
12	378	37.5	190	2	A47537 bcl-x transmembran
13	377.5	37.5	214	2	149057 apoptosis regulato
14	375.5	37.3	227	2	JEO203 transforming prote
15	356	35.4	216	2	B37332 transforming prote
16	349.5	34.7	199	1	TVMSR1 transforming prote
17	346	34.4	205	1	TVHUB1 transforming prote
18	277.5	27.6	154	2	158194 gene bcl-2 protein
19	182	18.1	170	2	149055 bcl-x short - mus
20	176	17.5	211	2	S58873 Bak protein - huma
21	174	17.3	176	2	167435 gene bcl-xshort pr
22	173	17.2	211	2	S58875 cdn-2 protein - hu
23	157.5	15.6	192	2	S58875 bcl-2-associated p
24	153	15.2	192	2	A47538 bcl-2-associated p
25	150	14.9	261	2	H88578 protein ced-9 (imp
26	149.5	14.8	280	2	A53189 apoptosis suppress
27	149.5	14.8	133	2	153295 bcl-2-associated p
28	146.5	14.5	179	2	UC7255 Bax-delta protein
29	146.5	14.5	216	2	B47538 bcl-2-associated p

30	143	14.2	177	2	S54778 NR-13 protein - qu
31	141	14.0	255	2	UC7567 Mcl-1a protein - z
32	137.5	13.7	143	2	bcl-2-associated p
33	118	11.7	175	2	Bcl-2 related - hu
34	112	11.1	350	2	Bcl2 homolog MCL1
35	110.4	11.1	172	2	hemopoietic-specif
36	105	10.4	172	2	probable lipase/es
37	91.5	9.1	301	2	hypothetical prote
38	89	8.8	185	2	genome polypeptid
39	87	8.6	3433	1	genome polypeptid
40	85	8.4	270	2	dihydrodipicolinat
41	84.5	8.4	279	2	dihydrodipicolinat
42	83	8.2	358	1	glutamate--ammonia
43	82.5	8.2	417	2	DNA binding protei
44	82.5	8.2	1440	1	genome polypeptid
45	81.5	8.1	3432	1	genome polypeptid
			354	2	Gln 1.1 protein -

ALIGNMENTS

RESULT 1

149056 bcl-x long - mouse

C:Species: Mus musculus (house mouse)

C>Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999

C:Accession: 149056; S52866

R:Pang, W.; Rivard, J.J.; Mueller, D.L.; Behrens, T.W.

J. Immunol. 153, 4388-4398, 1994

A>Title: Cloning and molecular characterization of mouse bcl-x in B and T lymphocytes

A:Reference number: 149055; MUID:95052604

A:Accession: 149056

A>Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 1-233 <RES>

A:Cross-references: EMBL:U10101; NID:g506647; PIDN:AA82173.1; PID:g506648

R:Kamesaki, H.; Michaud, G.Y.; Takatsu, K.; Okuma, M.

submitted to the EMBL Data Library, November 1994

A:Description: IL-5 inhibits anti-19M-induced apoptosis in an immature B cell line th

A:Reference number: S52866

A:Accession: S52866

A>Status: preliminary

A:Molecule type: mRNA

A:Residues: 1-233 <KAM>

A:Cross-references: EMBL:X83574; NID:g695622; PIDN:CA58557.1; PID:g695623

C:Superfamily: bcl transforming protein

Query Match

Best Local Similarity 41.3%; Score 428.5; DB 2; Length 233;

Matches 93; Conservative 22; Mismatches 57; Indels 53; Gaps 4;

Query 11 RALVADPVGKLRKQGY-----V 28

Db 6 RELVDFLSYKLSQKGSWSQFSDVEENRTEADEETEAERETPSAINGNPSMHLADSPAV 65

Query 29 CGAGPGCGPAD-----PLHQAMRAGDEETETFRFTSLAQLHTVPSAQOQRT 80

Db 66 NGA-TGHSISIDAREVTPMAAVKQALREAGDELELRRAFSQTLTTPETAQSF 124

Query 81 QVSDELFOGGPNNGRUVAFFVFGALCAESVNEEMETLVGOVEMVAVLETRADIMHS 140

Db 125 QVNNELFRDGVNMGRIYAFSFGALCVESYDDEMOVIVSRISMATYINHLERWIDE 184

Query 141 SGGMAEFTALYGDGALAEARLRRE--GNMASVPTVLTGAVLALCAL 183

Db 185 NGMDTFVDLYGNNAAESRKGQERFNRWFLTGMTAGVLLTSL 229

RESULT 2

B47537

apoptosis regulator bcl-xL - human

N:Alternate names: bcl-2-related protein

	Query Match	Score 428.5;	DB 2;	Length 233;
	Best Local Similarity	40.6%;	Pred. No. 2,9e-37;	
Matches	91; Conservative	23; Mismatches	59; Indels	51; Gaps
QY	11 RALVADPVGKLLKOKGY-----VCGAGP----	GEGPAA	39	
Db	:		:	
Db	6 RELVDPLSLYKLKSQSWMSQSFDEENRTEAPECTESEMETPSAINGNSMHLASPVA			65
QY	40 D-----PLHQARRAAGDEPERFTRFRFTSFDLAOLHPYGPSAOORFO			81
Db	: : : : :			125
Db	66 NGATAHSSSLDAREVIIPMAAVKQALURENDEDELRYKRFAFDLSLTHITPGTAIOSFEO			125
QY	82 VSEDLPOGGPRNGCRVLAAFFVFPGALCAESVYNKEMLPVGOVEEMVVALLETRLADIHS			141
Db	126 VVNEELFRDDGNMGRIYAAPFSFGALCVESVYRKEMQVELSRITAMMATIYLNDHLEPWIOEW			185
QY	142 GGAAEFATLADGCALAEARLR--GNNAASRVTVLTGVNLVAGL			183
Db	186 GGMDTFVELTGNMMAAESKKQGERNNRFILGMIVTAGVTLGSL			229

[illegible]

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RESULT      4
A37332
transforming protein (bcl-2-alpha) - chicken
C:Species: Gallus gallus (chicken)
C:Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 23-Feb-1997
C:Accession: A37332; S35453
R:Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
Nucleic Acids Res. 20, 4187-4192, 1992
A:Title: Isolation and characterization of the chicken bcl-2 gene: expression in a var
A:Reference number: A37332; MUID:92375724
A:Accession: A37332
A>Status: nucleic acid sequence not shown
A:Molecule type: DNA
A:Residues: 1-233 <EGU>
A:Cross-references: EMBL:D11381
C:Genetics:
A:Introns: 189/3
C:Superfamily: bcl transforming protein
C:Keywords: mitochondrion; transforming protein; transmembrane protein

Query Match      42.1%; Score 423.5; DB: 2; Length 233;
Best local similarity 38.0%; Pred. No. 8.4e-32;
Matches 87; Conservative 32; Mismatches 61; Indels 49; Gaps 4;

QY      9  DTRALVADVGKTKLRQKQYVCGAG-----PGEGRADP----- 41
      | : | : | | | | | | | | | | | | | | | |
Db      10  DNREIVLKYIHKLQRCGYDMAAGEDRPVPAPAPAAAPAAVAAAGASHHREPPGSA 69
      | : | : | | | | | | | | | | | | | | | |

QY      42  -----LHQMRAGADEETFRFRRTSSDLAQLHYTPGSAQORFTOVS 84
      | : | : | | | | | | | | | | | | | | | |
Db      70  AASEVPAEGLRPAPPGVHGLALRQAGDEFSSRYORDFAQMSGQLHLPFTAHGGRFAVVE 129
      | : | : | | | | | | | | | | | | | | | |

QY      85  ELFGCGPAGKRLVAFVFGALCAESYNKEMREPLVGQVQEMVAVYLETRLADITHSSGCV 144
      | | | | | | | | | | | | | | | | | | | |
Db      130  ELFRGVAMGIVAFEEFGGVACVESYKREKSPLYDNIATMTTEYLNRHLHNMVLDONGW 189
      | | | | | | | | | | | | | | | | | | | |

QY      145  AEFLLAYDGALEEARLRLEGNNMASVRTVLGAVAGALYTVGAFFASK 193
      | | | | | | | | | | | | | | | | | | | |
Db      190  DAFVELYGN---SMRPLDFDSWISLTKTILS-LVLVGCITLIGAYLGHK 233
      | | | | | | | | | | | | | | | | | | | |

RESULT      5
S24390
transforming protein (Bcl-2) homolog - chicken
C:Species: Gallus gallus (chicken)
C:Date: 13-Jan-1995 #sequence_revision 13-Jan-1995 #text_change 16-Jul-1999
C:Accession: S24390
R:Cezais-Hatem, D.L.; Louie, D.C.; Tanaka, S.; Reed, J.C.
Biochim. Biophys. Acta 1132, 109-113, 1992

```


A:Title: Molecular cloning and DNA sequence analysis of cDNA encoding chicken homologue
 A:Reference number: S24390; MUID:92379084
 A:Accession: S24390
 A:Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 1-232 <CAZ>
 A:Cross-references: EMBL:Z11961; NID:962969; PIDN:CAA78018.1; PID:962970
 C:Superfamily: bcl transforming protein
 C:Keywords: mitochondrion; transmembrane protein

Query Match 41.1%; Score 414; DB 2; Length 232;
 Best Local Similarity 37.7%; Pred. No. 6, 3e-31;
 Matches 86; Conservative 32; Mismatches 62; Indels 48; Gaps 4;

9 DTRALVADFEYKLRQKGYCGAG-----DQEGPAADP----- 41
 10 DNRRTVAKYHYKLSQRYGMAGEDRPVPAPAPAAVAAGASSHHRPSPARL 69
 42 -----LHQARRAAGDEFTFRFRFTSDLAQLHTVPGSAOQRFTQVSDE 85
 70 LTVRCPLRCGAAPGVYHALRQAGDEFNRKQRFDAQMSQGLHLPFTATGFAVVEE 129
 86 LFQGGPMWGRVAFVFGAALCAESVKNKEMEPVGOVQEMVAYLETBLADMIHSSGWA 145
 130 LFRGVWVWRVAFVFEFGVWCVESVNREKSPVLDNIATMTFTYLRHLHNNIQQNGGMD 189
 146 EFTALYDGALEEARLRGENMASVTVTLTGAVALGALTYVGAFFFSK 193
 190 AFVELYGN---SMRPLDFDSWISLTKILS-LVLVAGACITLGAYLGHK 232

RESULT 6

transforming protein bcl-2, splice form alpha - human

C:Species: Homo sapiens (man)
 C:Date: 31-Dec-1988 #sequence, revision 07-Jun-1996 #text, change 15-Oct-1999
 C:Accession: C37332; A29409; S02452; A24428; A27622; B27622
 R:Equuhl, Y.; Ewert, D.L.; Tsujimoto, Y.
 Nucleic Acids Res. 20, 4187-4192, 1992
 A:Title: Isolation and characterization of the chicken bcl-2 gene: expression in a variety of tissues
 A:Reference number: A37332; MUID:92375724
 A:Accession: C37332
 A:Status: nucleic acid sequence not shown; not compared with conceptual translation
 A:Molecule type: DNA
 A:Residues: 1-239 <EGU>
 A:Note: this report is a correction
 R:Tsujimoto, Y.; Croce, C.M.
 Proc. Natl. Acad. Sci. U.S.A. 83, 5214-5218, 1986
 A:Title: Analysis of the structure, transcripts, and protein products of bcl-2, the gene for B-cell leukemia
 A:Reference number: A29409; MUID:86259760
 A:Accession: A29409
 A:Molecule type: mRNA
 A:Residues: 1-95, 'A', '97-109, 'G', '111-236, 'S', '238-239 <TSU>
 A:Cross-references: GB:MI3994; NID:q179366; PIDN:AA51813.1; PID:q179367
 A:Note: this sequence has been corrected in reference A37332
 R:Sefto, M.; Jaeger, U.; Hockett, R.D.; Graninger, W.; Bennett, S.; Goldman, P.; Korsmeyer, S.J.
 EMBO J. 7, 123-131, 1988
 A:Title: Alternative promoters and exons, somatic mutation and deregulation of the Bcl-2 gene
 A:Reference number: S02452; MUID:86196071
 A:Accession: S02452
 A:Molecule type: mRNA
 A:Residues: 1-239 <SEM>
 R:Cleary, M.L.; Smith, S.D.; Sklar, J.
 Cell 47, 19-28, 1986
 A:Title: Cloning and structural analysis of cDNAs for bcl-2 and a hybrid bcl-2/immunoglobulin heavy chain enhancer
 A:Reference number: A24428; MUID:87002488
 A:Accession: A24428
 A:Molecule type: mRNA
 A:Residues: 1-58, 'T', '60-116, 'R', '118-239 <CLE>
 A:Cross-references: GB:MI4745; NID:q179370; PIDN:AA35591.1; PID:q179371
 R:Ha, C.; Zorn, S.; Jensen, J.P.; Coupland, R.W.; Ko, H.S.; Wright, J.J.; Bakhshi, A.
 Oncogene Res. 2, 263-275, 1988

A:Title: Consequences of the t(14;18) chromosomal translocation in follicular lymphoma
 A:Reference number: A27622; MUID:88217344
 A:Accession: A27622
 A:Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 1-58, 'T', '60-239 <HUA>
 A:Accession: B27622
 A:Molecule type: DNA
 A:Residues: 1-6, 'S', '8-58, 'T', '60-128, 'C', '130-239 <HUA>
 A:Note: the sequence was determined from the germ-line gene
 C:Comment: Constitutive expression of BCL2 following t(14;18) chromosomal translocation
 C:Genetics:
 A:Gene: GDB:BCL2
 A:Cross-references: GDB:119031; OMIM:151430
 A:Map position: 18q21.3-18q21.3
 C:Function:
 A:Description: blocks apoptosis in hematopoietic cells
 C:Superfamily: bcl transforming protein
 C:Keywords: alternative splicing; apoptosis; B-cell lymphoma; follicular lymphoma; pr

Query Match 41.0%; Score 412.5; DB 1; Length 239;
 Best Local Similarity 37.0%; Pred. No. 9e-31;
 Matches 87; Conservative 34; Mismatches 59; Indels 55; Gaps 5;

9 DTRALVADFEYKLRQKGYCGAG-----DQEGPAADP----- 35
 10 DNRRTVAKYHYKLSQRYGMAGEDRPVPAPAPAAVAAGASSHHRPSPARL 69
 36 -----GRAPD-----LHQARRAAGDEFTFRFRFTSDLAQLHTVPGSAOQR 78
 70 SPLQTPAAGCAAGPASPVPVYVHLTLRQAGDEFNRKQRFDAQMSQGLHLPFTATGFAVVEE 129
 79 FTQVSDLEFQGGPMWGRVAFVFGAALCAESVKNKEMEPVGOVQEMVAYLETBLADMI 138
 130 FATVVEELFRDGVWVWRVAFVFEFGVWCVESVNREKSPVLDNIATMTFTYLRHLHNNIQQNGGMD 189
 139 HSSGMAEFTALYDGALEEARLRGENMASVTVTLTGAVALGALTYVGAFFFSK 193
 190 QNGGMDAFVELYGN---PSMRPLDFDSWISLTKILS-LVLVAGACITLGAYLGHK 239

RESULT 7

BCL-2 - rat (fragment)

C:Species: Rattus norvegicus (Norway rat)
 C:Date: 26-Jul-1996 #sequence, revision 26-Jul-1996 #text, change 16-Jul-1999
 C:Accession: 167432
 R:Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L.
 Endocrinology 136, 232-241, 1995
 A:Title: Expression of members of the bcl-2 gene family in the immature rat ovary: eg constitutive bcl-2 and bcl-xiong messenger ribonucleic acid levels.
 A:Reference number: I53295; MUID:95129487
 A:Accession: 167432
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-236 <RES>
 A:Cross-references: EMBL:U34964; NID:q1004378; PIDN:AA77687.1; PID:q1004379
 C:Superfamily: bcl transforming protein

Query Match 40.9%; Score 412; DB 2; Length 236;
 Best Local Similarity 36.2%; Pred. No. 9.9e-31;
 Matches 84; Conservative 34; Mismatches 62; Indels 52; Gaps 3;

9 DTRALVADFEYKLRQKGY-----DQEGPAADP----- 27
 10 DNRRTVAKYHYKLSQRYGMAGEDRPVPAPAPAAVAAGASSHHRPSPARL 69
 28 -----VCCAGCGEGPAADPLHQAARRAAGDEFTFRFRFTSDLAQLHTVPGSAOQRFTQ 81
 70 SPLRPLVANAAGPALSPVPVYVHLTLRQAGDEFNRKQRFDAQMSQGLHLPFTATGFAVVEE 129
 82 VSDLEFQGGPMWGRVAFVFGAALCAESVKNKEMEPVGOVQEMVAYLETBLADMIHSS 141

Db 130 VEELEFRDGVNMGRIYAFEEFGVGVCSVNRNEMPLVDNIALMTEFLNRLHHTWIDN 189
 QY 142 GGMAEFTALYDGALEEARRLREGNMASVPTVLGAVALGALVYGAFFASK 193
 Db 190 GGMAEFVVELYCG---PSMRPLDFDSWOSKLTLSLAL-VGACITLGAAYLGHR 236

RESULT 8
 153744
 gene bcl-2 protein - rat

C:Species: Rattus norvegicus (Norway rat)
 C:Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 16-Jul-1999
 C:Accession: 153744
 R:Sato, T.; Irie, S.; Krajewski, S.; Reed, J.C.
 Gene 140, 291-292, 1994
 A:Title: Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein.
 A:Reference number: 153744; MUID:94193015
 A:Accession: 153744
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-236 <RES>
 A:Cross-references: GB:L14680; NID:q408946; PIDN:AAA53662.1; PID:q408947
 C:Genetics:
 A:Gene: bcl-2
 C:Superfamily: bcl transforming protein

Query Match 40.4%; Score 407; DB 2; Length 236;
 Best Local Similarity 35.8%; Pred. No. 2, 9e-30;

Matches 83; Conservative 34; Mismatches 63; Indels 52; Gaps 3;

QY 9 DTRALVADPFGYKLRQGY----- 27
 Db 10 DNEIYMKYIHYKLSQRGYEMDTGDEDSAPLRAAPPGIFSPQESNRPAYHRTAART 69
 QY 28 -----VCGAGPEGCPADPLHOAMRAAGDEFEFRFRFSDLAQLHTVPGSAOQRTQ 81
 Db 70 SPLRPLVANNAGPRLSPVPVHILTLRRADDTSRRYRPAEMSSQLHTLPFTARGREAT 129
 QY 82 VSELEFQGGPNMGRLVAFVFGAALCAESVKNEMEPVGOVOMVAVYLETRLDWISS 141
 Db 130 VEELEFRDGVNMGRIYAFEEFGVGVCSVNRNEMSPVDNIALMTEFLNRLHHTWIDN 189
 QY 142 GGMAEFTALYDGALEEARRLREGNMASVPTVLGAVALGALVYGAFFASK 193
 Db 190 GGMAEFVVELYCG---PSMRPLDFDSWOSKLTLSLAL-VGACITLGAAYLGHR 236

RESULT 9

TYMSA1

transforming protein bcl-2-alpha - mouse
 C:Species: Mus musculus (house mouse)
 C:Date: 31-Dec-1988 #sequence_revision 31-Dec-1988 #text_change 18-Jun-1999
 C:Accession: A25960; E37332

R:Negrini, M.; Silini, E.; Kozak, C.; Tsujimoto, Y.; Croce, C.M.
 Cell 49, 455-463, 1987
 A:Title: Molecular analysis of bcl-2: structure and expression of the murine gene homo

A:Reference number: A90893; MUID:87187643
 A:Accession: A25960

A:Molecule type: DNA

A:Residues: 1-236 <NEC>

A:Cross-references: GB:L15352; GB:M16506; NID:q468336; PIDN:AAA37282.1; PID:q387109

R:Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.

Nucleic Acids Res. 20, 4187-4192, 1992

A:Title: Isolation and characterization of the chicken bcl-2 gene: expression in a varie

A:Reference number: A37352; MUID:92375724

A:Accession: E37352

A:Status: preliminary; nucleic acid sequence not shown; not compared with conceptual tra

A:Molecule type: DNA

A:Residues: 1-33, 'E', 34-220, 'AL', 223-236 <ECU>

C:Genetics:

A:Gene: BCL2

A:introns: 192/3
 C:Superfamily: bcl transforming protein
 C:Keywords: alternative splicing; mitochondrion; transforming protein; transmembrane

Query Match 40.3%; Score 406; DB 1; Length 236;
 Best Local Similarity 37.1%; Pred. No. 3, 6e-30;
 Matches 86; Conservative 33; Mismatches 61; Indels 52; Gaps 5;

QY 9 DTRALVADPFGYKLRQGYCGAG-----PG----- 34
 Db 10 DNEIYMKYIHYKLSQRGYEMDADADAPLGAAPPGIFSPQESNRPAYHRTAART 69
 QY 35 -----EGPADP-----LHOAMRAAGDEFEFRFRFSDLAQLHTVPGSAOQRTQ 81
 Db 70 SPLRPLVATAGPALSPVPCVHILTLRRADDTSRRYRPAEMSSQLHTLPFTARGREAT 129
 QY 82 VSELEFQGGPNMGRLVAFVFGAALCAESVKNEMEPVGOVOMVAVYLETRLDWISS 141
 Db 130 VEELEFRDGVNMGRIYAFEEFGVGVCSVNRNEMSPVDNIALMTEFLNRLHHTWIDN 189
 QY 142 GGMAEFTALYDGALEEARRLREGNMASVPTVLGAVALGALVYGAFFASK 193
 Db 190 GGMAEFVVELYCG---PSMRPLDFDSWOSKLTLSLAL-VGACITLGAAYLGHR 236

RESULT 10

BCL-X-Long - rat

C:Species: Rattus norvegicus (Norway rat)
 C:Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 16-Jul-1999
 C:Accession: 167431

R:Tilly, J.L.; Tilly, K.I.; Kenton, M.L.; Johnson, A.L.
 Endocrinology 136, 232-241, 1995

A:Title: Expression of members of the bcl-2 gene family in the immature rat ovary: eg
 constitutive bcl-2 and bcl-x long messenger ribonucleic acid levels.

A:Reference number: 153955; MUID:95129487

A:Accession: 167431

A:Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 1-233 <RES>

A:Cross-references: EMBL:U34963; NID:q1004376; PIDN:AAA77686.1; PID:q1004377

C:Superfamily: bcl transforming protein

Query Match 40.2%; Score 404.5; DB 2; Length 233;
 Best Local Similarity 39.6%; Pred. No. 4, 8e-30;
 Matches 89; Conservative 22; Mismatches 61; Indels 53; Gaps 4;

QY 11 RALVADPFGYKLRQGY-----Y 28
 Db 6 RELVADPFGYKLRQGY-----Y 28
 QY 29 CGAGPEGCPAD-----PLHOAMRAAGDEFEFRFRFSDLAQLHTVPGSAOQRTQ 80
 Db 66 NGA-TGSSSSLDAREVLPMAAVKQALREAGDEFLRRRAFSQLTSLHTPCTVQSPHE 124
 QY 81 QVSELEFQGGPNMGRLVAFVFGAALCAESVKNEMEPVGOVOMVAVYLETRLDWISS 140
 Db 125 QVVELEFRDGVNMGRIYAFVFGAALCAESVKNEMEPVGOVOMVAVYLETRLDWISS 184
 QY 141 SGMAEFTALYDGALEEARRLREGNMASVPTVLGAVALGALVYGAFFASK 193
 Db 185 NGMDVDFVLDVGNNTAPESRKGGERNRWFLGTMTAGVALLGSL 229

RESULT 11

JC7383

B-cell lymphoma 2 protein - Chinese hamster

C:Species: Citellus griseus (Chinese hamster)

C:Date: 17-Nov-2000 #sequence_revision 17-Nov-2000 #text_change 08-Dec-2000

C:Accession: JC7383

R:Tomicic, M.T.; Christmann, M.; Kaina, B.

100

100

Page 5

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Db      66  NGA-TGSSSLDAREVIMAAVKQALREAGDEFFELRYRRAFSDLSQLHTPGTAYQSF 124
OY      81  QVSDLEFQGGPMWGRLLVAFVFGALCAESVNMKEPVLGVQOEWMVAYLETRLADWTHS 140
Db      125  QVNNLEFRDGVNMGRIYAFVFGALCVESVDKEMQVLVSRIAMMATYLLNDHLEPWIOE 184
OY      141  SGMWAETALYGDGALAEARR 161
Db      185  NGGWVTRTKPLVCPFSLASGR 205

```

RESULT 15

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B37332
Transforming protein (bcl-2-beta) - chicken
C:Species: Gallus gallus (chicken)
C:Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 24-Apr-1998
C:Accession: B37332; S35452
R:Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.
Nucleic Acids Res. 20, 4187-4192, 1992
A:Title: Isolation and characterization of the chicken bcl-2 gene: expression in a variety of tissues
A:Reference number: A37332; MUID:92375724
A:Accession: B37332
A>Status: nucleic acid sequence not shown
A:Molecule type: DNA
A:Residues: 1-216 <ECU>
A:Cross-references: EMBL:D11381; EMBL:D11382
C:Superfamily: bcl transforming protein

```

```

Query Match      35.4%; Score 356; DB 2; Length 216;
Best local Similarity 38.4%; Pred. No. 1.4e-25;
Matches 71; Conservative 21; Mismatches 49; Indels 44; Gaps 2;

OY      9  DTRALVADPVGYKLRQKGYCGAG-----PGEPAADP----- 41
      10  DNREIVLKYTHYKLSQKGYDMAGEDRPVPAPAPAPAAAPAAVAAAGASSHHRPPPGSA 69
Db      42  -----LHQAMRAAGDEFTFRRTFSDLAQLHVTGSAQGRFTQVSD 84
      70  AASEVPPAEGLRPAPPGVHLALRQAGDEFSRRYQDFQAQMSGOLHLPTFAHGFRVAVVE 129
OY      85  ELFOGPNMGRLVAFVFGALCAESVNMKEPVLGVQOEWMVAYLETRLADWTHSSGM 144
      130  ELFRDGVNMGRIYAFVFGALCVESVDKEMQVLVSRIAMMATYLLNDHLEPWIOE 189
OY      145  AEFPA 149
Db      190  VRACA 194

```

Search completed: June 10, 2002, 10:26:22
 Job time: 170 sec

Mon Jun 10 11:32:17 2002

us-09-155-327e-7.rsp

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 10, 2002, 10:26:27 ; Search time 15.84 Seconds
(without alignments)
471.772 Million cell updates/sec

Title: US-09-155-327e-7
Perfect score: 1007
Sequence: 1 MAFPSAPDPRALVADFEVGY.....LTGVALGALVTGAFASK 193

Scoring table: BLOSUM62
Gapop 10.0, Gapext 0.5

Searched: 105224 seqs, 38719550 residues
Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database: - SwissProt_40.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	1007	100.0	193	1 BCLM_HUMAN	092843 homo sapien
2	1000	99.3	193	1 BCLM_MOUSE	P70345 mus musculu
3	646.5	64.2	228	1 ARL_XENLA	091827 xenopus lae
4	433.5	42.9	229	1 BCLX_CHICK	007816 gallus gall
5	431.5	42.9	233	1 BCLX_PIG	077737 sus scrofa
6	428.5	42.6	233	1 BCLX_HUMAN	007817 homo sapien
7	428.5	42.6	233	1 BCLX_MOUSE	064373 mus musculu
8	423.5	42.1	233	1 BCLX_RAT	P53563 rattus norv
9	423.5	42.1	233	1 BCL2_CHICK	000709 gallus gall
10	416.5	41.4	229	1 BCL2_BOVIN	002718 bos taurus
11	414	41.1	236	1 BCL2_MOUSE	P49950 rattus norv
12	413	41.0	236	1 BCL2_RAT	P10417 mus musculu
13	412.5	41.0	236	1 BCL2_HUMAN	P10417 mus musculu
14	403	40.0	236	1 BCL2_CRITO	091478 crottelus
15	371	36.8	204	1 ARL1_XENLA	091828 xenopus lae
16	177.5	17.6	208	1 BAK_MOUSE	008734 mus musculu
17	176	17.5	211	1 BAK_HUMAN	016011 homo sapien
18	173	17.2	211	1 BAK2_HUMAN	013014 homo sapien
19	155.5	15.4	192	1 BAXA_MOUSE	007813 mus musculu
20	154.5	15.3	192	1 BAXA_RAT	063690 rattus norv
21	153	15.2	192	1 BAXA_HUMAN	007812 homo sapien
22	150	14.9	280	1 CED9_GAEFL	P41958 caenorhabdi
23	147	14.6	192	1 BAXA_BOVIN	002703 bos taurus
24	146.5	14.5	218	1 BAXB_HUMAN	007814 homo sapien
25	143	14.2	177	1 NR13_COTJA	090343 coturnix co
26	137.5	13.7	143	1 BAXD_HUMAN	P55269 homo sapien
27	136.5	13.6	271	1 CED9_CAEHR	P41957 caenorhabdi
28	118	11.7	175	1 BELL_HUMAN	016548 homo sapien
29	112	11.1	350	1 MC1L_HUMAN	007820 homo sapien
30	105	10.4	172	1 BFL1_MOUSE	007440 mus musculu
31	99.5	9.9	179	1 EAR_ASFB7	007819 african swi
32	98.5	9.8	179	1 EAR_ASFB7	P42485 african swi
33	98.5	9.8	179	1 EAR_ASFE4	007818 african swi

34	88.5	8.8	658	1 SOHC_BRAJA	P54924 bradyrhizob
35	87	8.6	3433	1 POLG_KUNIM	P14335 k genome po
36	85.5	8.5	358	1 GUNA_LACSA	P23712 lactuca sat
37	82.5	8.2	1440	1 POLG_JAEVN	P14403 j genome po
38	82.5	8.2	3432	1 POLG_JAEVJ	P32886 j genome po
39	81	8.0	396	1 PORA_PYRFU	051804 pyrococcus
40	79	7.8	541	1 FTCD_RAT	088618 rattus norv
41	79	7.8	3430	1 POLG_MNV	P06935 w genome po
42	78.5	7.8	886	1 TSSP_MOUSE	P14599 drosophila
43	78	7.7	509	1 YB48_MYCTU	09495 mus musculu
44	77.5	7.7	454	1 YB48_MYCTU	006548 mycobacteri
45	77.5	7.7	454	1 YB45_MYCTU	P95269 mycobacteri

ALIGNMENTS

RESULT 1
ID BCLM_HUMAN STANDARD: PRT; 193 AA.

AC 092843;
DT 01-NOV-1997 (rel. 35, Last sequence update)
DT 01-NOV-1997 (rel. 35, Last sequence update)
DT 16-OCT-2001 (rel. 40, Last annotation update)
DE Apoptosis regulator Bcl-2.
GN BCL2L2 OR BCL2L OR KIA0271.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
OC NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=96358615; PubMed=8761287;
RA Gibson L., Holmgren S.P., Huang D.C., Bernard O., Copeland N.G.,
RA Jenkins N.A., Sutherland G.R., Baker E., Adams J.M., Cory S.,
RT "Bcl-2, a novel member of the bcl-2 family, promotes cell survival."
RL Oncogene 13:665-675(1996).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=97191544; PubMed=9039502;
RA Nagase T., Seki N., Ishikawa K.-I., Ohira M., Kawabayashi Y.,
RA Ohara O., Tanaka A., Kotani H., Miyajima N., Nomura N.,
RT "Prediction of the coding sequences of unidentified human genes. VI.
RT analysis of the coding sequences of 80 new genes (KIA0201-KIA0280) deduced by
RL DNA Res. 3:321-329(1996).
CC - FUNCTION: PROMOTES CELL SURVIVAL.
CC - SUBCELLULAR LOCATION: CYTOPLASMIC.
CC - TISSUE SPECIFICITY: EXPRESSED IN ALMOST ALL MYELOID CELL LINES AND
CC IN A WIDE RANGE OF TISSUES, WITH HIGHEST LEVELS IN BRAIN, COLON,
CC AND SALIVARY GLAND.
CC - DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC
CC FUNCTION.
CC - SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
CC - SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
CC - SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
CC - SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
CC
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CC or send an email to license@sib.sib.ch).
CC
CC EMBL: U59747; AAB09055.1;
CC EMBL: D87461; BAA19666.1;
CC HSSP: 007817; IMA2.
CC MIM: 601931;
CC InterPro: IPR002475; BCL2_family.
CC InterPro: IPR003093; BH4.

DR InterPro: IPR000712; Bcl_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BCL; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 KW Apoptosis.
 FT DOMAIN 9 29 BH4.
 FT DOMAIN 85 104 BH1.
 FT DOMAIN 136 151 BH2.
 SQ SEQUENCE 193 AA; 20774 MM; 3792243A50281761 CRC64;

Query Match 100.0%; Score 1007; DB 1; Length 193;
 Best Local Similarity 100.0%; Pred. No. 2.5e-83;
 Matches 193; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MATPASAPDTRALVADFGVYKLRQKGYVCGAGPGEPAADPLHQAMRAAGDEFETFRRT 60
 DB 1 MATPASAPDTRALVADFGVYKLRQKGYVCGAGPGEPAADPLHQAMRAAGDEFETFRRT 60
 QY 61 FSDLAQLHVTGSAQOQRTQVSDLEFQGGPNNGRVAFVFGAALCAESVKNKEMEPLVG 120
 DB 61 FSDLAQLHVTGSAQOQRTQVSDLEFQGGPNNGRVAFVFGAALCAESVKNKEMEPLVG 120
 QY 121 QVOEMWVAVLETRLDWTHSSGMAEFTALYGDGALAEARLRREGNMASVRYTLTGAVL 180
 DB 121 QVOEMWVAVLETRLDWTHSSGMAEFTALYGDGALAEARLRREGNMASVRYTLTGAVL 180
 QY 181 GALVTGCAFFASK 193
 DB 181 GALVTGCAFFASK 193

RESULT 2
 BCLW_MOUSE STANDARD; PRT; 193 AA.
 ID BCLW_MOUSE P70345;
 DT 01-NOV-1997 (Rel. 35, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 15-JUL-1999 (Rel. 38, Last annotation update)
 DE Apoptosis regulator Bcl-W.
 GN BCL2L2 OR BCLW.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OX NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=96358615; Pubmed=8761287;
 RA Gibson L., Holmgren S.P., Huang D.C., Bernard O., Copeland N.G.,
 RA Jenkins N.A., Sutherland G.R., Baker E., Adams J.M., Cory S.,
 RT "bcl-w, a novel member of the bcl-2 family, promotes cell survival.";
 RL Oncogene 13:663-675(1996).
 RN [2]
 RP SEQUENCE FROM N.A.
 RX STRAIN=C57BL/10J;
 RX MEDLINE=98160183; Pubmed=9500547;
 RA Ross A.J., Maguire K.G., Moss J.E., Parlow A.F., Skinner M.K.,
 RA Russell L.D., Macgregor G.R.;
 RT "Testicular degeneration in Bclw-deficient mice";
 RL Nat. Genet. 18:251-256(1998).
 CC -1- FUNCTION: PROMOTES CELL SURVIVAL.
 CC -1- SUBCELLULAR LOCATION: Cytoplasmic.
 CC -1- TISSUE SPECIFICITY: EXPRESSED IN ALMOST ALL MYELOID CELL LINES AND
 CC IN A WIDE RANGE OF TISSUES, WITH HIGHEST LEVELS IN BRAIN, COLON,
 CC AND SALIVARY GLAND.
 CC -1- DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC
 CC FUNCTION.

CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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 CC -----

DR EMBL: U59746; AAB09056.1; -.
 DR EMBL: AF030769; AAB86430.1; -.
 DR HSSP: Q07817; IMA2.
 DR MGD: MGI:108052; Bcl2l2.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; Bcl_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BCL; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 KW Apoptosis.
 FT DOMAIN 9 29 BH4.
 FT DOMAIN 85 104 BH1.
 FT DOMAIN 136 151 BH2.
 SQ SEQUENCE 193 AA; 20790 MM; 36CA185F5945DB4 CRC64;

Query Match 99.3%; Score 1000; DB 1; Length 193;
 Best Local Similarity 99.0%; Pred. No. 1e-82;
 Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MATPASAPDTRALVADFGVYKLRQKGYVCGAGPGEPAADPLHQAMRAAGDEFETFRRT 60
 DB 1 MATPASAPDTRALVADFGVYKLRQKGYVCGAGPGEPAADPLHQAMRAAGDEFETFRRT 60
 QY 61 FSDLAQLHVTGSAQOQRTQVSDLEFQGGPNNGRVAFVFGAALCAESVKNKEMEPLVG 120
 DB 61 FSDLAQLHVTGSAQOQRTQVSDLEFQGGPNNGRVAFVFGAALCAESVKNKEMEPLVG 120
 QY 121 QVOEMWVAVLETRLDWTHSSGMAEFTALYGDGALAEARLRREGNMASVRYTLTGAVL 180
 DB 121 QVOEMWVAVLETRLDWTHSSGMAEFTALYGDGALAEARLRREGNMASVRYTLTGAVL 180
 QY 181 GALVTGCAFFASK 193
 DB 181 GALVTGCAFFASK 193

RESULT 3
 ARL_XENLA STANDARD; PRT; 228 AA.
 ID ARL_XENLA G91827;
 DT 01-NOV-1997 (Rel. 35, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 01-NOV-1997 (Rel. 35, Last annotation update)
 DE Apoptosis regulator R1 (XRL) (Fragment).
 OS Xenopus laevis (African clawed frog).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipridae; Pipidae;
 OC Xenopodinae; Xenopus.
 OX NCBI_TaxID=6335;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX TISSUE=Head;

Query Match	Best Local Similarity	Match 125: Conservative	Score 64.2%	DB 1: Pred. No. 5.7e-51	Length 228:	Indels 3:	Gaps 1
QY 10	TRALVADFVGYRLKRGVYCGAGPGEPPADPLHQAARRAAGDEFTFRFRRTSDLAQLH	69					
DB 48	SNALVEDLVRYKLCQNSLV---	104					
QY 70	VPPGSAQQQFFTOVSDLEFPQGGPRNGRLVAFVFGALCAESVKKEMPEPLVGOVQOEWMVAY	129					
DB 105	VPPGVAFAFAFAEVAAGSLFQGGVNMGRIVAFVFGALCAESVKKEMSPILPRIQDMVITY	164					
QY 130	LETRLADMTTHSSGGMAEFALYGDGALIEBARRLREGNMASVPTVLGAVVALGALVTVGAF	189					
DB 165	LEHNLMDWTQNSGNGMGFLITLYGDGALIEEARRRQREGNMASLKTVLNGAVVALGALMTVGAL	224					
QY 190	FASK 193						
DB 225	FASK 228						
RESULT 4							
BCLX_CHICK							
ID	BCLX_CHICK	STANDARD:	PRT:	229	AA.		
AC	007816:	Q98908:					
DT	01-FEB-1995	(rel. 31, Created)					
DT	01-NOV-1997	(rel. 35, last sequence update)					
DT	16-OCT-2001	(rel. 40, last annotation update)					
DE	Apoptosis regulator Bcl-X.						
GN	BCL2L1 OR BCLX OR BCL-X.						
OS	Gallus gallus (Chicken).						

CC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
CC	Actinoptera; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
CC	Gallus.
OX	NCBI_TaxID=9031;
RN	[1]
RP	SEQUENCE FROM N.A. (SHORT FORM).
RA	MEDLINE=93364977; PubMed=8358789;
RC	Boise L.H., Gonzalez-Garcia M., Postema C.E., Ding L., Lindsten T.,
RA	Turka L.A., Mao X., Nunez G., Thompson C.B.;
RT	"bcl-2, a bcl-2-related gene functions as a dominant regulator
RT	of apoptotic cell death."
RL	Cell 74:597-608(1993).
RN	[2]
RP	SEQUENCE FROM N.A. (LONG FORM).
RC	STRAIN=HUBBARD WHITE MOUNTAIN; TISSUE=Testis;
RA	MEDLINE=97264485; PubMed=9110311;
RT	Villagrosa X., Mezquita C., Mezquita J.;
RT	"differential expression of bcl-2 and bcl-x during chicken
RT	spermatogenesis";
RL	Mol. Reprod. Dev. 47:26-29(1997).
CC	-1- FUNCTION: DOMINANT REGULATOR OF APOPTOTIC CELL DEATH. THE LONG
CC	FORM DISPLAYS CELL DEATH REPRESSOR ACTIVITY, WHEREAS THE SHORT
CC	ISOFORM PROMOTES APOPTOSIS (BY SIMILARITY).
CC	-1- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR
CC	ENVELOPE (BY SIMILARITY).
CC	-1- ALTERNATIVE PRODUCTS: 2 ISOFORMS, A LONG FORM (SHOWN HERE) AND A
CC	SHORT FORM. ARE PRODUCED BY ALTERNATIVE SPLICING.
CC	-1- TISSUE SPECIFICITY: HIGHEST EXPRESSION IN ORGANS WITH LYMPHOID
CC	DEVELOPMENT.
CC	-1- DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC
CC	FUNCTION. INTRACT BH1 AND BH2 DOMAINS ARE REQUIRED FOR ANTI-
CC	APOPTOTIC ACTIVITY (BY SIMILARITY).
CC	-1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
CC	-1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
CC	-1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
CC	-1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
CC	-1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
CC	-----
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CC	use by non-profit institutions as long as its content is in no way
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CC	entities requires a license agreement (see http://www.isb-sib.ch/announce/sib.ch).
CC	or send an email to license@sib-sib.ch).
CC	-----
DR	EMBL; 223110; CA80657.1; -
DR	EMBL; 026645; AAB07677.1; -
DR	PIR; A47537; A47537.
DR	HSSP; P53563; IAF3.
DR	InterPro: IPR002475; BCL2_family.
DR	InterPro: IPR003093; BH4
DR	InterPro: IPR00712; Bcl_2.
DR	Pfam; PF00452; Bcl-2; 1.
DR	Pfam; PF02180; BH4; 1.
DR	SMART; SM00337; BCL; 1.
DR	SMART; SM00265; BH4; 1.
DR	PROSITE; PS50062; BCL2_FAMILY; 1.
DR	PROSITE; PS01080; BH1; 1.
DR	PROSITE; PS01258; BH2; 1.
DR	PROSITE; PS01259; BH3; 1.
DR	PROSITE; PS01260; BH4_1; 1.
DR	PROSITE; PS50063; BH4_2; 1.
KW	Apoptosis; Transmembrane; Alternative splicing.
FT	DOMAIN 4 24
FT	DOMAIN 82 96
FT	DOMAIN 125 144
FT	DOMAIN 176 191
FT	TRANSSEM 206 223
FT	VARSPIC 185 229
FT	
SEQUENCE	229 AA: 25733 MW: A9733AADD04CE0BDA CRC64;

Query Match 42.9%; Score 432.5; DB 1; Length 229;
 Best Local Similarity 41.7%; Pred. No. 8.4e-32;
 Matches 95; Conservative 22; Mismatches 62; Indels 49; Gaps 4;

11 RALVADFEVGYKLRKGY-----VCGAGGEGE----- 37
 Db 6 RELVDFEYKLSQKRGHSELEEDENRTDTAAEMDSVLNGSPSPHPPAGVNGAT 65
 QY 38 -----AADPLHOAMRAAGDEFETRRFTFSDLAAOLHWPGSAQGRFTQVSD 85
 Db 66 VHRSSLEHVEHRSVDROLRAGDEFLRRASDLTSQHTTPGTAYSFEQVNE 125
 QY 86 LFOGGRWGLVAFYFGAALCAESYKMEKPELVGOVQEMVAYLETRLADWISSGMA 145
 Db 126 LFDHGVNMGRIVAFESFGALCVESYDKEMRVLGRIVSMYTYLTDHLDPIQENGWE 185
 QY 146 EFTALYGDGALAEARRREGNMASVFTVLGAVALGALTYGAFASK 193
 Db 186 RFDVLYGNNA---AAELRKQGFENKWLIGATVAGVLL-VGSLLSRK 229

RESULT 5
 BCLX_PIG STANDARD; PRT; 233 AA.

AC 077737;
 DT 15-JUL-1999 (Rel. 38, Created)
 DT 15-JUL-1999 (Rel. 38, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-x.
 GN BCL2L1 OR BCL2L OR BCLX.
 OS Sus scrofa (Pig).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
 OX NCBI-TaxID=9823;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Bartling B., Hoffmann J., Holtz J., Schulz R., Hensch G., Darmer D.;
 RT "Expression of apoptosis-associated genes in hibernating and stunned
 myocardium of pig."
 RL Submitted (JAN-1998) to the EMBL/GenBank/DBJ databases.
 CC -!- FUNCTION: Potent inhibitor of cell death. Inhibits activation of
 caspases (By similarity). Appears to regulate cell death by
 blocking the voltage-dependent anion channel (VDAC) by binding
 to it and preventing the release of the caspase activator,
 cytochrome c, from the mitochondrial membrane.
 CC -!- SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (By
 similarity). Heterodimerization with BAX does not seem to be
 required for anti-apoptotic activity (By similarity).
 CC -!- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR
 ENVELOPE (By similarity).
 CC -!- DOMAIN: The BH4 domain is required for anti-apoptotic activity.
 with other Bcl2 family members are required for both heterodimerization
 and for protein stability. The cleaved protein, lacking the BH4 domain, has pro-
 apoptotic activity (By similarity).
 CC -!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -!- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -----
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 or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: AJ001203; CA004597.1; -
 DR HSSP: Q07817; IMAZ.

DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; BCL2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4; 1.
 DR PROSITE: PS50063; BH4.2; 1.
 KW Apoptosis; Mitochondrion; Transmembrane.
 FT DOMAIN 4 24 BH4.
 FT DOMAIN 86 100 BH3.
 FT DOMAIN 129 148 BH1.
 FT DOMAIN 180 195 BH2.
 FT TRANSMEM 210 226 POTENTIAL.
 SQ SEQUENCE 233 AA: 26061 MW; 18BF6FA0441912B2 CRC64;

Query Match 42.9%; Score 431.5; DB 1; Length 233;
 Best Local Similarity 41.8%; Pred. No. 1.1e-31;
 Matches 94; Conservative 21; Mismatches 57; Indels 53; Gaps 4;

QY 11 RALVADFEVGYKLRKGY-----V 28
 Db 6 RELVDFEYKLSQKRGHSELEEDENRTDTAAEMDSVLNGSPSPHPPAGVNGAT 65
 QY 29 CGAGGEGEPAAD-----PLHOAMRAAGDEFETRRFTFSDLAAOLHWPGSAQGRFT 80
 Db 66 NGA-TGHSSSDAREVIMPAVAVKQALREAGDEFLRRASDLTSQHTTPGTAYSFE 124
 QY 81 QVSELEFGGNNMGRIVAFYFGAALCAESYKMEKPELVGOVQEMVAYLETRLADWISS 140
 Db 125 QVLELEFEDGVNMGRIVAFESFGALCVESYDKEMRVLGRIVSMYTYLTDHLDPIQ 184
 QY 141 SGMAEFTALYGDGALAEARRREGNMASVFTVLGAVALGAL 183
 Db 185 NGMDTFEYELGNMAAESRGRGDFRFRWLTGTTLAGVLLSL 229

RESULT 6

BCLX_HUMAN STANDARD; PRT; 233 AA.

AC 007817; Q92976;
 DT 01-FEB-1995 (Rel. 31, Created)
 DT 01-FEB-1995 (Rel. 31, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Apoptosis regulator Bcl-x.
 GN BCL2L1 OR BCL2L OR BCLX.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominiidae; Homo.
 OX NCBI-TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(S)).
 RX MEDLINE=93364977; PubMed=8358789;
 RA Boise L.H., Gonzalez-Garcia M., Postema C.E., Ding L., Lindsten T.,
 RA Turka L.A., Mao X., Nunez G., Thompson C.B.;
 RT "Bcl-x, a bcl-2-related gene that functions as a dominant regulator
 of apoptotic cell death."
 RL Cell 74:597-608(1993).
 RN [2]
 RP SEQUENCE FROM N.A. (ISOFORM BETA).
 RA Inohara N., Ohta S.;
 RL Submitted (OCT-1996) to the EMBL/GenBank/DBJ databases.
 RN [3]
 RP MUTAGENESIS OF GLY-138, AND HETERODIMERIZATION.
 RX MEDLINE=95372373; PubMed=7644501;
 RA Sedlak T.W., Oliveira Z.N., Yang E., Wang K., Boise L.H., Thompson C.B.,
 RA Korsmeyer S.J.;

RT "Multiple Bcl-2 family members demonstrate selective dimerizations
RT with Bax.";
RT Proc. Natl. Acad. Sci. U.S.A. 92:7834-7838(1995).
RA (4)
RP MUTAGENESIS OF BH1 AND BH2 DOMAINS.
RX MEDLINE=96170038; PubMed=859636;
RA Cheng E.H.-Y., Levine B., Boise L.H., Thompson C.B., Hardwick J.M.,
RA Korsmeyer S.J.;
RT "Bax-independent inhibition of apoptosis by Bcl-XL.";
RL Nature 379:554-556(1996).
RN [5]
RP STRUCTURE BY NMR OF 1-209.
RX MEDLINE=97172562; PubMed=9020082;
RA Sattler M., Liang H., Nettlesheim D., Meadows R.P., Harlan J.E.,
RA Eberstadt M., Yoon H.S., Shuker S.B., Chang B.S., Mann A.J.,
RA Thompson C.B., Fesik S.W.;
RT "Structure of Bcl-XL-Bak peptide complex: recognition between
RT regulators of apoptosis.";
RL Science 275:983-986(1997).
RN [6]
RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS), AND STRUCTURE BY NMR OF 1-209.
RX MEDLINE=96236675; PubMed=8692274;
RA Muchmore S.W., Sattler M., Liang H., Meadows R.P., Harlan J.E.,
RA Yoon H.S., Nettlesheim D., Chang B.S., Thompson C.B., Wong S.T.,
RA Ng S.L., Fesik S.W.;
RT "X-ray and NMR structure of human Bcl-XL, an inhibitor of programmed
RT cell death.";
RL Nature 381:335-341(1996).
RN [7]
RP CLEAVAGE BY CASPASES, AND MUTAGENESIS OF ASP-61.
RX MEDLINE=98118550; PubMed=9435330;
RA Clem R.J., Cheng E.H.-Y., Karp C.L., Kirsch D.G., Ueno K.,
RA Takahashi A., Kastan M.B., Griffin D.E., Earnshaw W.C., Velluona M.A.,
RA Hardwick J.M.;
RT "Modulation of cell death by Bcl-XL through caspase interaction.";
RL Proc. Natl. Acad. Sci. U.S.A. 95:554-559(1998).
CC -I- FUNCTION: Potent inhibitor of cell death. Inhibits activation of
CC caspases (by similarity). Appears to regulate cell death by
CC blocking the voltage-dependent anion channel (VDAC) by binding
CC to it and preventing the release of the caspase activator,
CC cytochrome c, from the mitochondrial membrane. The Bcl-x(s)
CC isoform promotes apoptosis.
CC -I- SUBUNIT: Bcl-X(L) forms heterodimers with BAX, BAK and Bcl-2.
CC Heterodimerization with BAX does not seem to be required for anti-
CC apoptotic activity.
CC -I- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR
CC ENVELOPE (BY SIMILARITY).
CC -I- ALTERNATIVE PRODUCTS: 3 ISOFORMS: BCL-X(L) (SHOWN HERE), BCL-X(S)
CC AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.
CC -I- TISSUE SPECIFICITY: BCL-X(S) IS EXPRESSED AT HIGH LEVELS IN CELLS
CC THAT UNDERGO A HIGH RATE OF TURNOVER, SUCH AS DEVELOPING
CC LYMPHOCYTES. IN CONTRAST, BCL-X(L) IS FOUND IN TISSUES CONTAINING
CC LONG-LIVED POSTMITOTIC CELLS, SUCH AS ADULT BRAIN.
CC -I- DOMAIN: The BH4 domain is required for anti-apoptotic activity.
CC The BH1 and BH2 domains are required for both heterodimerization
CC with other Bcl2 family members and for repression of cell death.
CC -I- PTM: Proteolytically cleaved by caspases during apoptosis. The
CC cleaved protein, lacking the BH4 domain, has pro-apoptotic
CC activity.
CC -I- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY DOMAIN 1 (BH1).
CC -I- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY DOMAIN 2 (BH2).
CC -I- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY DOMAIN 3 (BH3).
CC -I- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOGY DOMAIN 4 (BH4).
CC -I- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
CC -----
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DR	EMBL; Z23116; CAAB0662.1; -
DR	EMBL; Z23115; CAAB0661.1; -
DR	EMBL; U72398; AAB17354.1; -
DR	PDB; 1BXU; 29-OCT-97.
DR	PDB; 1LXL; 21-APR-97.
DR	PDB; 1MAZ; 21-APR-97.
DR	MIM; 600039; -
DR	InterPro; IPR002475; BCL2_family.
DR	InterPro; IPR003093; BH4_2.
DR	InterPro; IPR00712; BCL_2.
DR	Pfam; PF00452; Bcl-2; 1.
DR	Pfam; PF02180; BH4; 1.
DR	SMART; SM00337; BCL; 1.
DR	SMART; SM00265; BH4; 1.
DR	PROSITE; PS5062; BCL2_FAMILY; 1.
DR	PROSITE; PS01080; BH1; 1.
DR	PROSITE; PS01258; BH2; 1.
DR	PROSITE; PS01259; BH3; 1.
DR	PROSITE; PS01260; BH4_1; 1.
DR	PROSITE; PS50063; BH4_2; 1.
KW	Apoptosis; Mitochondrion; Alternative splicing; Transmembrane;
KW	3D-structure; 4
KT	DOMAIN 86 24
FT	DOMAIN 86 100
FT	DOMAIN 129 148
FT	DOMAIN 180 195
FT	TRANSMEM 210 226
FT	SITE 61 61
FT	VARSPLIC 126 188
FT	VARSPLIC 189 233
FT	
FT	
FT	MUTAGEN 61 61
FT	
FT	MUTAGEN 131 133
FT	MUTAGEN 135 137
FT	
FT	MUTAGEN 138 140
FT	
FT	MUTAGEN 138 138
FT	MUTAGEN 148 148
FT	MUTAGEN 156 156
FT	MUTAGEN 176 176
FT	MUTAGEN 188 189
FT	
FT	MUTAGEN 189 189
FT	CONFLICT 70 70
FT	
SEQ	SEQUENCE 233 AA; 26049 MW; E0D93CD851AE9B CRC64;
Query Match 42.6%; Score 428.5; DB 1; Length 233;	
Best Local Similarity 41.3%; Pred. No. 2e-31; 57; Indels 53; Gaps	
Matches 93; Conservative 22; Mismatches	
OY	11 RALVADFVGYLRKRGK-----Y 28
Dd	6 RELVYDFELSTYSLSQKGSMSGFSDEVEENRTREAREGTSEMEPTSLANGNSPHLADSPAV 65
OY	29 CGAGPGEESPAAD-----PLHOAMRAAGDEFETRRFRFTSDLAQLAHVTGSAOQRT 80
Dd	66 NGA-TGHSSSIDAREEVIPMAVKQALCREADEFELRYRAFSLTLSQTILITPGTAYOSFE 124
OY	81 QVSDELFCGGGNMGRIVAFVFGAALCAEVSNNEMPELVGOVENMVATLETRILMDIWS 140
Dd	125 OYNVNLFFEDGVNKGVIYAFFSFGGALLVESYDKDEMQLVSRIRAAVMATYLNDHLEPWIOE 184
OY	141 SGGMAEFTALYGDALEEARRLR--GNMASVTVTLTGAVAILGAL 183
Dd	185 NGGMOTFVELYIGNMAAESRKQGREFRNRFMTLGWTAVAGVLLGSL 229
RESULT 7	
BCIX_MOUSE	

ID BCLX_MOUSE STANDARD; PRT; 233 AA.
 AC Q64373; Q60657; Q60658; Q61338;
 DT 01-NOV-1997 (Rel. 35, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Apoptosis regulator Bcl-x.
 GN BCL2L1 OR BCL2L OR BCLX.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OX NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA STRAIN=2A4B;
 RC Kamesaki H., Michaud G.Y., Takatsu K., Okuma M.;
 RL submitted (MAR-1995) to the EMBL/GenBank/DBJ databases.
 RN [2]
 RP SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(BETA)).
 RC STRAIN=C57BL/6; TISSUE=Brain;
 RX MEDLINE=9531139; PubMed=7607090;
 RA Gonzalez-Garcia M., Perez-Ballester R., Ding L., Duan L., Boise L.H.,
 Thompson C.B., Nunez G.;
 RT "bcl-xL is the major bcl-x mRNA form expressed during murine
 development and its product localizes to mitochondria."
 RL Development 120:3033-3042(1994).
 RN [3]
 RP SEQUENCE FROM N.A. (ISOFORMS X(L); X(S) AND X(DELTA-TM)).
 RC TISSUE=Pre-B cell;
 RX MEDLINE=95052604; PubMed=7963517;
 RA Fang W., Rivard J.J., Mueller D.L., Behrens T.W.;
 RT "Cloning and molecular characterization of mouse bcl-x in B and T
 lymphocytes."
 RL Immunol. 153:4388-4398(1994).
 RN [4]
 RP SEQUENCE FROM N.A. (ISOFORM X(BETA)).
 RC STRAIN=C57BL/6 X CBA; TISSUE=Thymus;
 RX MEDLINE=96051053; PubMed=9390667;
 RA Yang X.-F., Weber G.F., Cantor H.;
 RT "A novel Bcl-x isoform connected to the T cell receptor regulates
 apoptosis in T cells."
 RL Immunity 7:629-639(1997).
 RN [5]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=97289584; PubMed=9144489;
 RA Gilliot D.A., Gonzalez-Garcia M., Ekheraie D., Duan L., Inohara N.,
 Ohta S., Seidlin M.F., Nunez G.;
 RT "Genomic organization, promoter region analysis, and chromosome
 localization of the mouse bcl-x gene."
 RL J. Immunol. 158:4750-4757(1997).
 CC -1- FUNCTION: Potent inhibitor of cell death. Inhibits activation of
 caspases (by similarity). Appears to regulate cell death by
 blocking the voltage-dependent anion channel (VDAC) by binding
 to it and preventing the release of the caspase activator,
 cytochrome c, from the mitochondrial membrane. The Bcl-x(s)
 isoform promotes apoptosis.
 CC -1- SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (by
 similarity). Heterodimerization with BAX, BAK and Bcl-2 (by
 similarity) required for anti-apoptotic activity (by similarity).
 CC -1- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANS AND PERINUCLEAR
 ENVELOPE FOR BCL-X(L). CYTOPLASMIC FOR BCL-X(DELTA-TM).
 CC -1- ALTERNATIVE PRODUCTS: 4 ISOFORMS: BCX-X(L) (SHOWN HERE), BCL-X(S),
 BCL-X(BETA) AND BCL-X(DELTA-TM); ARE PRODUCED BY ALTERNATIVE
 SPLICING.
 CC -1- TISSUE SPECIFICITY: WIDELY EXPRESSED, WITH HIGHEST LEVELS IN THE
 BRAIN, THYMUS, BONE MARROW, AND KIDNEY. BCL-X(L) AND BCL-X(DELTA-
 TM) EXPRESSION IS ENHANCED IN B AND T LYMPHOCYTES THAT HAVE BEEN
 ACTIVATED.
 CC -1- DEVELOPMENTAL STAGE: BCL-X(BETA) IS EXPRESSED IN BOTH EMBRYONAL AND
 POSTNATAL TISSUES. WHEREAS BCL-X(L) IS PREDOMINANTLY FOUND IN
 POSTNATAL TISSUES.
 CC -1- DOMAIN: The BH1 and BH2 domains are required for anti-apoptotic activity.
 CC The BH1 and BH2 domains are required for both heterodimerization
 CC with other Bcl2 family members and for repression of cell death.

CC -1- PPM: Proteolytically cleaved by caspases during apoptosis (By
 CC similarity). The cleaved protein, lacking the BH4 domain, has pro-
 CC apoptotic activity (by similarity).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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 CC or send an email to license@isb-sib.ch).
 CC -----

DR EMBL: X83574; CAA58557.1; -
 DR EMBL: L35049; AAA51039.1; -
 DR EMBL: L35048; AAA51040.1; -
 DR EMBL: U10102; AAA82174.1; -
 DR EMBL: U10101; AAA82173.1; -
 DR EMBL: U10100; AAA82172.1; -
 DR EMBL: U51279; AAC53460.1; -
 DR EMBL: U78031; AAB96881.1; -
 DR EMBL: U78030; AAB96881.1; JOINED.
 DR HSSP: P53563; IAF3.
 DR MGD: MGI:88139; Bcl2l.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; Bcl-2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS00062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4; 1; 1.
 DR PROSITE: PS00063; BH4_2; 1.
 KM Apoptosis; Mitochondrion; Alternative splicing; Transmembrane.
 FT DOMAIN 1 24
 FT DOMAIN 86 100 BH3.
 FT DOMAIN 129 148 BH1.
 FT DOMAIN 180 195 BH2.
 FT TRANSMEM 210 226 POTENTIAL.
 FT VARSPLIC 126 188 MISSING (IN ISOFORM BCL-X(S)).
 FT VARSPLIC 189 233 DFEVDLGNNAAESRKGQERFNRFLTGMVAGVILGSLFSRK
 FT BCL-X(BETA)).
 FT LYGNNAAESRKGQERFNRFLTGMVAGVILGSLFSRK
 FT -> GHDCGWCAGLTLTQSEVTRH (IN ISOFORM BCL-
 FT X(DELTA-TM)).
 SQ SEQUENCE 233 AA: 26132 MW: 24D2AC79687E072E CRC64:

Query Match 42.6%; Score 428.5; DB 1; Length 233;
 Best Local Similarity 41.3%; Pred. No. 2e-31;
 Matches 93; Conservative 22; Mismatches 57; Indels 53; Gaps 4;
 QY 11 RALVADFWGKLRQGY-----V 28
 DB 6 RELVADFLSYLKQSGYSWQFSDVEENRTAPEETEARETPSAINGNPMSHLADSPAV 65
 QY 29 CGAGGDEGPAD-----PLHQAMRAAGDEFRFRRTSDLAALQHTPGSAQGRFT 80
 DB 66 NGA-TGHSSTLDAREVIDMAAVKQALREAGDEFEFLRRASDLSLTSLHTPGTAYOSFE 124
 QY 81 QVSDLEFGGPMWGRVLVAFVFGAALCAESYKKEEPLVGVGVQVAMVAVLETRADMTIS 140
 DB 125 QVNVLEFDGVMKGVITAFVSFGALCVESYDKEMQVLYSRITASWMTYLLNDHLEPIQE 184

QY 81 QVSELEFGGPNMGRVLAFFVFGALCAESYKMEPELVGOVEMVAVLETRLADWHS 140
 DB 125 QVNELEFDDGVNMGRIYAFEFSGALCVESDKRMQVLVSRISMATYTLNDLHPWIOE 184
 QY 141 SGGAAETALYGDALDEARLR--GNMASVFTVLTGAVALGAL 183
 DB 185 NGGMDTFVDLYGNNAAESRGRERFNRWPLTGMTVAGVLLGSL 229
 RESULT 9
 BCL2_CHICK
 ID BCL2_CHICK STANDARD: PRT: 233 AA.
 AC Q00709;
 DT 01-APR-1993 (Rel. 25, Created)
 DT 01-APR-1993 (Rel. 25, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-2.
 GN BCL2 OR BCL-2.
 OS Gallus gallus (Chicken).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
 OC Gallus.
 OX NCBI_TaxID=9031;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA MEDLINE=92375724; PubMed=1508712;
 RA Eguchi Y., Ewert D.L., Tsujimoto Y.,
 RT "Isolation and characterization of the chicken bcl-2 gene: expression
 RT in a variety of tissues including lymphoid and neuronal organs in
 RT adult and embryo."
 RL Nucleic Acids Res. 20:4187-4192(1992).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE-B-cell lymphoma;
 RX MEDLINE=92379084; PubMed=1511008;
 RX Cazals-Hatem D.L., Louie D.C., Tanaka S., Reed J.C.;
 RT "Molecular cloning and DNA sequence analysis of cDNA encoding chicken
 RT homologue of the Bcl-2 oncoprotein."
 RL Biochim. Biophys. Acta 1133:109-113(1992).
 CC -1- FUNCTION: Suppresses apoptosis in a variety of cell systems
 CC including factor-dependent lymphohematopoietic and neural cells.
 CC Regulates cell death by controlling the mitochondrial membrane
 CC permeability. Appears to function in a feedback loop system with
 CC caspases. Inhibits caspase activity either by preventing the
 CC release of cytochrome c from the mitochondria and/or by binding to
 CC the apoptosis-activating factor (Apaf-1).
 CC -1- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
 CC Bcl-X(L). Heterodimerization with BAX requires intact BH1 and BH2
 CC domains, and is necessary for anti-apoptotic activity (By
 CC similarity). Also interacts with APAF-1 and RAIF-1 (By similarity).
 CC -1- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
 CC membrane of the nuclear envelope and the endoplasmic reticulum.
 CC -1- TISSUE SPECIFICITY: In adult chicken expressed, in thymus, spleen,
 CC kidney, heart, ovary and brain, with the highest levels in the
 CC thymus. In the embryo, highly levels expressed in all tissues with
 CC high levels in the bursa of Fabricius.
 CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity and
 CC for interaction with RAIF-1 (By similarity).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
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DR EMBL: D11382; BAA01978.1; -
 DR EMBL: D11381; BAA01978.1; JOINED.
 DR EMBL: 211961; CAA78018.1; -
 DR PIR: A37332; A37332.
 DR PIR: S24390; S24390.
 DR HSP: 007817; IMA2.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR00712; Bcl_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS0062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS0063; BH4_2; 1.
 DR Apoptosis; Transmembrane; Mitochondrion.
 FT DOMAIN 10 30
 FT DOMAIN 87 101
 FT DOMAIN 130 149
 FT DOMAIN 181 196
 FT TRANSMEM 208 228
 FT TRANSMEM 64 64
 FT CONFLICT 67 82
 FT CONFLICT 121 121
 FT CONFLICT 139 139
 FT CONFLICT 139 139
 FT SEQUENCE 233 AA; 25687 MW; 5252555ACB6E4C3D CRC64;
 Query Match 42.1%; Score 423.5; DB 1; Length 233;
 Best Local Similarity 38.0%; Pred. No. 5; se-31;
 Matches 87; Conservative 32; Mismatches 61; Indels 49; Gaps 4;
 QY 9 DTRALVADPVGKLRQKGYCGAG-----PGEPPADP----- 41
 DB 10 DNRFLVKIHYIKLSQGYDMAGEDRPVPAPAPAAAPAAVAAAGASSHRRPEPGSA 69
 QY 42 -----LHQAMRAGDEFEETRRRTFSDLAOLHYTPGSAQGRFTQVSD 84
 DB 70 AASVPPAEGIRPAPPGVHALRLRQAGDEFRRYORFOAGSCOLHTPTAHBFVAAYVE 129
 QY 85 ELFGGPNMGRVLAFFVFGALCAESYKMEPELVGOVEMVAVLETRLADWHS 144
 DB 130 ELFRDGVNMGRIYAFEFSGALCVESDKRMQVLVSRISMATYTLNDLHPWIOE 189
 QY 145 AETALYGDALDEARLR--GNMASVFTVLTGAVALGALVYGFAPSK 193
 DB 190 DAEVELYGN-----SMRPLEDFSWISIKTILS-LVLVAGACITIGAYGKH 233
 RESULT 10
 BCL2_BOVIN
 ID BCL2_BOVIN STANDARD: PRT: 229 AA.
 AC Q02718;
 DT 16-OCT-2001 (Rel. 40, Created)
 DT 16-OCT-2001 (Rel. 40, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-2.
 GN BCL2.
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Bovinae; Bos.
 OX NCBI_TaxID=9913;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN=HOLSTEIN; TISSUE=Thymus;
 RA Reyes R.A., Cockrell G.L.;
 RT "Bovine leukemia virus associated-leukemogenesis is correlated

RT with suppression of programmed cell death and increased expression
 of Bcl-2.
 RL Submitted (MAR-1997) to the EMBL/GenBank/DBJ databases.
 CC -1- FUNCTION: Suppresses apoptosis in a variety of cell systems
 CC including factor-dependent lymphohematopoietic and neural cells.
 CC Regulates cell death by controlling the mitochondrial membrane
 CC permeability. Appears to function in a feedback loop system with
 CC caspases. Inhibits caspase activity either by preventing the
 CC release of cytochrome c from the mitochondria and/or by binding to
 CC the apoptosis-activating factor (Apaf-1) (By similarity).
 CC -1- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
 CC Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2
 CC domains, and is necessary for anti-apoptotic activity (By
 CC similarity). Also interacts with Apaf-1 and Raf-1 (By similarity).
 CC -1- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
 CC membrane of the nuclear envelope and the endoplasmic reticulum (By
 CC similarity).
 CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity and
 CC for interaction with Raf-1 (By similarity).
 CC -1- PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2
 CC anti-apoptotic activity. Growth factor-stimulated phosphorylation
 CC on Ser-70 by PKC is required for the anti-apoptosis activity and
 CC occurs during the G2/M phase of the cell cycle (By similarity). In
 CC the absence of growth factors, Bcl2 appears to be phosphorylated
 CC by other protein kinases such as ERKs and stress-activated
 CC kinases. Dephosphorylated by protein phosphatase 2A (PP2A) (By
 CC similarity).
 CC -1- PTM: Proteolytically cleaved by caspases during apoptosis. The
 CC cleaved protein, lacking the BH4 domain, has pro-apoptotic
 CC activity, causes the release of cytochrome c into the cytosol
 CC promoting further caspase activity (By similarity).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC
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 CC
 DR EMBL: U92434; AAB5319.1;
 DR HSP: Q07817; IMAZ.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; BCL-2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS00063; BH4_2; 1.
 DR Apoptosis; Transmembrane; Mitochondrion; Phosphorylation.
 KW DOMAIN 10
 FT DOMAIN 64
 FT DOMAIN 69
 FT DOMAIN 72
 FT DOMAIN 83
 FT DOMAIN 97
 FT DOMAIN 126
 FT DOMAIN 145
 FT DOMAIN 177
 FT DOMAIN 192
 FT TRANSMEM 202
 FT SITE 34
 FT SITE 35
 FT MOD_RES 63
 FT MOD_RES 63
 SEQUENCE 229 AA; 25099 MW; AD1DD0AF98FFFLID CRC64;

Query Match 41.4%; Score 416.5; DB 1; Length 229;
 Best Local Similarity 38.2%; Pred. No. 2,3e-30;
 Matches 86; Conservative 35; Mismatches 59; Indels 45; Gaps 5;
 OY 9 DTRALVADFGVKKLRQKQYVCGAC-----TGE----- 35
 DB 10 DNREIVMKYIHKLSQRCYEMWDGAGAPGAPAPGSISSQGRPPAPRSPPPPA 69
 OY 36 ---GPAAP---LHQARRAGDEPFRFRFSPDLAQLHVTGSAOQFTQVSDLEFQ 88
 DB 70 AAGAPSPVPVPPVHLTRQAGDDSRKRDFAFMSQHLTFPTAFERATVVEELFR 129
 OY 89 GSPNMGRIVAEPFVGALCAESVKNEMKPLVGOVEMVAVLETRLDWIHSGGMAEFT 148
 DB 130 DGVNMGRIVAEPFVGCVESVKNEMSPVDSIALMTETLRHLFTWIDNGGMDAFV 189
 OY 149 ALYGGALLEANRLREGMNASRYTLTGAVALGALVYTGAFPAK 193
 DB 190 ELYG----PSMRPLDFSWLSIKALLSLAL-VGACITTGAVLYGHR 229
 RESULT 11
 BCL2_RAT STANDARD; PRT; 236 AA.
 AC P49950; Q62837; Q64032;
 DT 01-OCT-1996 (Rel. 34, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-2.
 GN BCL2 OR BCL-2.
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Rattus.
 OX NCBI_TaxID=10116;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Brain;
 RX MEDLINE=94193015; PubMed=8144041;
 RA Sato T., Irie S., Krajewski S., Reed J.C.;
 RL "Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein.";
 RN Gene 140:291-292(1994).
 [2]
 RP SEQUENCE FROM N.A.
 RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Ovary;
 RX MEDLINE=95129487; PubMed=7828536;
 RA Tilly J.L., Tilly K.L., Kenton M.L., Johnson A.L.;
 RT "Expression of members of the bcl-2 gene family in the immature rat
 RT ovary: equine chorionic gonadotropin-mediated inhibition of granulosa
 RT cell apoptosis is associated with decreased bax and constitutive
 RT bcl-2 and bcl-xlong messenger ribonucleic acid levels.";
 RL Endocrinology 136:232-241(1995).
 [3]
 RP SEQUENCE OF 19-172 FROM N.A.
 RX MEDLINE=95059917; PubMed=7969891;
 RA Castren E., Onga Y., Berzaghi M.P., Tzimagiorgis G., Thoenen H.,
 RA Lindholm D.;
 RT "bcl-2 messenger RNA is localized in neurons of the developing and
 RT adult rat brain.";
 RL Neuroscience 61:165-177(1994).
 CC -1- FUNCTION: Suppresses apoptosis in a variety of cell systems
 CC including factor-dependent lymphohematopoietic and neural cells.
 CC Regulates cell death by controlling the mitochondrial membrane
 CC permeability. Appears to function in a feedback loop system with
 CC caspases. Inhibits caspase activity either by preventing the
 CC release of cytochrome c from the mitochondria and/or by binding to
 CC the apoptosis-activating factor (Apaf-1).
 CC -1- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
 CC Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2
 CC domains, and is necessary for anti-apoptotic activity (By
 CC similarity). Also interacts with Apaf-1 and Raf-1 (By similarity).
 CC -1- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
 CC membrane of the nuclear envelope and the endoplasmic reticulum.
 CC -1- TISSUE SPECIFICITY: Expressed in a variety of tissues, with

highest levels in reproductive tissues. In the adult brain, expression is localized in mitral cells of the olfactory bulb, granule and pyramidal neurons of hippocampus, pontine nuclei, cerebellar granule neurons, and in ependymal cells. In prenatal brain, expression is higher and localized in the neuroepithelium and in the cortical plate.

-1- DOMAIN: The Bcl2 domain is required for anti-apoptotic activity and for interaction with Raf-1 (By similarity).

-1- PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle. In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases.

-1- PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the Bcl2 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity (By similarity).

-1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).

-1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).

-1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).

-1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.

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EMBL: L14680; AAA3662.1; -
 DR EMBL: U34964; AAA7687.1; -
 DR EMBL: S74122; -; NOT_ANNOTATED_CDS.
 DR HSSP: 007817; 1MAZ.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR00712; BCL_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 KM Apoptosis; Transmembrane; Mitochondrion; Phosphorylation.
 FT DOMAIN 10 30 BH4.
 FT DOMAIN 90 104 BH3.
 FT DOMAIN 133 152 BH1.
 FT DOMAIN 184 199 BH2.
 FT TRANSMEM 209 230 POTENTIAL.
 FT SITE 34 35 CLEAVAGE (BY CASPASES) (BY SIMILARITY).
 FT MOD_RES 70 70 PHOSPHORYLATION (BY PKC) (BY SIMILARITY).
 FT CONFLICT 42 42 A -> R (IN REF. 2).
 FT CONFLICT 157 157 E -> G (IN REF. 1).
 FT CONFLICT 164 164 S -> Y (IN REF. 2).
 FT CONFLICT 212 212 L -> Q (IN REF. 2).
 SQ SEQUENCE 236 AA; 26622 MW; E7688CB9071A872A CRC64;

Query Match 41.1%; Score 414; DB 1; Length 236;
 Best Local Similarity 36.2%; Pred. No. 4e-30;
 Matches 84; Conservative 34; Mismatches 62; Indels 52; Gaps 3;

9 DTRALVADVGKLRKQK-
 10 DNRREIVMKYHKLDSRGYEMDTGDESDAPLRAPAPGIFSPQSPESNRTPAVRDPTAART 69

28 -----VCGAGGEGGPAADPLHQAMRAGDEFETRRFRFSLAQLAHVTPGSAQOFTQ 81
 70 SPLRLPVANAGPALSPVPPVHLTLRRACDDSRKRRDFAMQSOLHPTTAGRAT 129
 82 VSDELFGGGPNNRGLVAFVFGAALCAESVKNEMEPVGQVEMVAYLETRLADWHS 141
 130 VVEELFRDGVNMGRIYAFPEFGVMCVESVNRKMSPLVNIALMTETVLRHLFTWIDN 189
 142 GGAEFTALYSGALAEARLRGNMWSRYTLGAVNGLAYTGAFPAK 193
 190 GGDPAFVELYG-----PSMRPLDFSWLSLKLTLAL-VGACTTGLAYLGRK 236

RESULT 12
 BCL2_MOUSE
 ID BCL2_MOUSE STANDARD; PRT; 236 AA.
 AC P10417; P10418; (Created)
 DT 01-MAR-1989 (Rel. 10, Last sequence update)
 DT 01-APR-1993 (Rel. 25, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Apoptosis regulator Bcl-2.
 GN BCL2 OR BCL-2
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 ON NCBI_TaxID=10090;
 RX SEQUENCE FROM N.A. (ISOFORMS ALPHA AND BETA).
 RC STRAIN-BALB/C; TISSUE=Liver;
 RX MEDLINE=87187643; PubMed=3032455;
 RA Negishi M., Sillini E., Kozak C., Tsujimoto Y., Croce C.M.;
 RT "Molecular analysis of mbcl-2: structure and expression of the murine
 RT gene homologous to the human gene involved in follicular lymphoma.";
 RT Cell 49:455-463(1987).
 RN [2]
 RP REVISIONS TO 221-222.
 RX MEDLINE=92375724; PubMed=1508712;
 RA Eguenl Y., Ewert D., Tsujimoto Y.;
 RT "Isolation and characterization of the chicken bcl-2 gene: expression
 RT in a variety of tissues including lymphoid and neuronal organs in
 RT adult and embryo.";
 RN Nucleic Acids Res. 20:4187-4192(1992).
 RN [3]
 RP PHOSPHORYLATION BY PKC, AND MUTAGENESIS OF SERINE RESIDUES.
 RX MEDLINE=97277291; PubMed=9115213;
 RA Ito T., Deng X., Carr B., May W.S. Jr.;
 RT "Bcl-2 phosphorylation required for anti-apoptosis function.";
 RN J. Biol. Chem. 272:11671-11673(1997).
 RN [4]
 RP DEPHOSPHORYLATION BY PP2A.
 RX MEDLINE=99069407; PubMed=9852076;
 RA Deng X., Ito T., Carr B., Mumby M., May W.S. Jr.;
 RT "Reversible phosphorylation of Bcl2 following interleukin 3 or
 RT bryostatin 1 is mediated by direct interaction with protein
 RT phosphatase 2A*";
 RN J. Biol. Chem. 273:34157-34163(1998).
 RL -1- FUNCTION: Suppresses apoptosis in a variety of cell systems
 CC including factor-dependent lymphohematopoietic and neural cells.
 CC Regulates cell death by controlling the mitochondrial membrane
 CC permeability. Appears to function in a feedback loop system with
 CC caspases. Inhibits caspase activity either by preventing the
 CC release of cytochrome c from the mitochondria and/or by binding to
 CC the apoptosis-activating factor (Apaf-1).
 CC -1- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
 CC BCL-X(L). Heterodimerization with BAX requires intact BH1 and BH2
 CC domains, and is necessary for anti-apoptotic activity (By
 CC similarity). Also interacts with Apaf-1 and Raf-1.
 CC -1- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
 CC membrane of the nuclear envelope and the endoplasmic reticulum.
 CC -1- ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown here) and beta;
 CC are produced by alternative splicing.
 CC -1- TISSUE SPECIFICITY: Expressed in a variety of tissues.
 CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity and

```
CC      for interaction with Raf-1.
CC      -1- PPM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2
CC      anti-apoptotic activity. Growth factor-stimulated phosphorylation
CC      on Ser-70 by PKC is required for the anti-apoptosis activity and
CC      occurs during the G2/M phase of the cell cycle. In the absence of
CC      growth factors, Bcl2 appears to be phosphorylated by other protein
CC      kinases such as ERKs and stress-activated kinases.
CC      Dephosphorylated by protein phosphatase 2A (PP2A).
CC      -1- PPM: Proteolytically cleaved by caspases during apoptosis. The
CC      cleaved protein, lacking the BH4 domain, has pro-apoptotic
CC      activity, causes the release of cytochrome c into the cytosol
CC      promoting further caspase activity.
CC      -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
CC      -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
CC      -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
CC      -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
CC      -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
CC      -----
CC      This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC      or send an email to license@isb-sib.ch).
CC      -----
DR      EMBL: L31532; AAA37282.1;
DR      EMBL: M16506; AAA37282.1; JOINED.
DR      EMBL: M16506; AAA37281.1;
DR      PIR: A25960; TVMSAL.
DR      PIR: B25960; TVMSAL.
DR      PIR: E37332; E37332.
DR      HSSP: 007817; IMAZ.
DR      MGD: MGI:88138; Bcl2.
DR      InterPro: IPR002475; BCL2_family.
DR      InterPro: IPR003093; BH4.
DR      InterPro: IPR000712; Bcl-2.
DR      Pfam: PF00452; Bcl-2; 1.
DR      Pfam: PF02180; BH4; 1.
DR      SMART: SM00337; BCL; 1.
DR      SMART: SM00265; BH4; 1.
DR      PROSITE: PS50062; BCL2_FAMILY; 1.
DR      PROSITE: PS01080; BH1; 1.
DR      PROSITE: PS01258; BH2; 1.
DR      PROSITE: PS01259; BH3; 1.
DR      PROSITE: PS01260; BH4.1; 1.
DR      PROSITE: PS50063; BH4.2; 1.
DR      Apoptosis: Alternative splicing; Transmembrane; Mitochondrion;
KW      Phosphorylation.
FT      DOMAIN 10 30 BH4.
FT      DOMAIN 90 104 BH3.
FT      DOMAIN 133 152 BH1.
FT      DOMAIN 184 199 BH2.
FT      TRANSMEM 209 230 POTENTIAL.
FT      SITE 34 35 CLEAVAGE (BY CASPASES) (BY SIMILARITY).
FT      MOD_RES 70 70 PHOSPHORYLATION (BY PKC).
FT      VARSPLIT 193 236 DAFVELYGPSMRPLDFSWLSKTLTSLALVGACITLGAVYL
FT      SEQUENCE 236 AA; 26425 MW; AA85EF6B0766BE0A CRC64;
SQ

Query Match 41.0%; Score 413; DB 1; Length 236;
Best Local Similarity 37.5%; Pred. No. 4.9e-30;
Matches 87; Conservative 34; Mismatches 59; Indels 52; Gaps 5;

OY      9 DTRALVADFEVGYLRQGYVCGAG-----PG----- 34
DB      10 DNRDIYVWKYHYKLSQGYEMDAGDADAPLCAAPPGIGFQPSNDMPAVHREMAAT 69
OY      35 -----EGPAADP-----LHOAMRAAGDEFEFRRTFSDLAQLAHLVTGSAQOQRTQ 81
DB      70 SPLRLPVATAGPALSPVPCVHLTLRRAGDDPFSRRYRDRDEAFEMSQHLULFTFTRGRAT 129

OY      82 VSDELPGCGNMGRLVAFVFEVGAALCAESVKNEMEDLVGOVEMVAYLEFRLADMISS 141
DB      130 VSEELFEDGVMGRVIAFEFEFGVCMCEVSYNREMSPLVDNIALMMTEVNLRLHTWIDN 189
OY      142 GGMAEFTALYDGDALAEARLRREGNMSASRYVLTVGALVATYVGAFPAK 193
DB      190 GGMDAVEALYG-----PSMRPLDFSWLSKTLTSLAL-VGACITLGAVYLGK 236

RESULT 13
BCL2_HUMAN
ID      BCL2_HUMAN STANDARD; PRT; 239 AA.
AC      P10415; P10416; Q16197; Q13842.
DT      01-MAR-1988 (Rel. 10, Created)
DT      01-APR-1993 (Rel. 25, Last sequence update)
DT      01-MAR-2002 (Rel. 41, Last annotation update)
DE      Apoptosis regulator Bcl-2.
GN      BCL2.
OS      Homo sapiens (Human).
OC      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC      Mammalia; Eutheria; Primates; Catarrhini; Hominiidae; Homo.
OX      NCBI_TaxID=9606;
RN      [1]
RP      SEQUENCE FROM N.A. (ISOFORMS ALPHA AND BETA).
RX      MEDLINE=86259760; PubMed=3523487.
RA      Tsujimoto Y., Croce C.M.;
RT      "Analysis of the structure, transcripts, and protein products of
RT      bcl-2, the gene involved in human follicular lymphoma.";
RL      Proc. Natl. Acad. Sci. U.S.A. 83:5214-5218(1986).
RN      [2]
RP      REVISIONS TO 96; 110 AND 237.
RX      MEDLINE=92375724; PubMed=1508712.
RA      Eguchi Y., Ewert D.L., Tsujimoto Y.;
RT      "Isolation and characterization of the chicken bcl-2 gene: expression
RT      in a variety of tissues including lymphoid and neuronal organs in
RT      adult and embryo.";
RL      Nucleic Acids Res. 20:4187-4192(1992).
RN      [3]
RP      SEQUENCE FROM N.A. (ISOFORM ALPHA).
RX      MEDLINE=87002488; PubMed=2875799.
RA      Cleary M.L., Smith S.D., Sklar J.;
RT      "Cloning and structural analysis of cDNAs for bcl-2 and a hybrid bcl-
RT      2/immunoglobulin transcript resulting from the t(14;18)
RT      translocation.";
RL      Cell 47:19-28(1986).
RN      [4]
RP      SEQUENCE FROM N.A. (ISOFORM ALPHA).
RX      MEDLINE=88196071; PubMed=2834197.
RA      Seto M., Jaeger U., Hockett R.D., Graninger W., Bennett S.,
RT      Goldman P., Korsmeyer S.J.;
RT      "Alternative promoters and exons, somatic mutation and deregulation
RT      of the Bcl-2-1g fusion gene in lymphoma.";
RL      EMBO J. 7:123-131(1988).
RN      [5]
RP      SEQUENCE OF 1-131 FROM N.A. (ISOFORM ALPHA), AND VARIANTS NHL.
RX      MEDLINE=92096610; PubMed=1339299.
RA      Tanaka S., Louie D.C., Kant J.A., Reed J.C.;
RT      "Frequent incidence of somatic mutations in translocated BCL2
RT      oncogenes of non-Hodgkin's lymphomas.";
RL      Blood 79:229-237(1992).
RN      [6]
RP      SUBCELLULAR LOCATION.
RX      MEDLINE=91066924; PubMed=2250705.
RA      Hockenbery D., Nunez G., Millman C., Schreiber R.D., Korsmeyer S.J.;
RT      "Bcl-2 is an inner mitochondrial membrane protein that blocks
RT      programmed cell death.";
RL      Nature 348:334-336(1990).
RN      [7]
RP      MUTAGENESIS.
RX      MEDLINE=94239528; PubMed=8183370.
RA      Yin X.-M., Olvera Z.N., Korsmeyer S.J.;
RT      "BH1 and BH2 domains of Bcl-2 are required for inhibition of
RT      apoptosis and heterodimerization with Bax.";
```


RN Nature 369:321-323(1994).
 RP CLEAVAGE BY CASPASES, AND MUTAGENESIS.
 RX MEDLINE=98057466; Pubmed=9395403;
 RA Cheng E.H.-Y., Kirsch D.G., Clem R.J., Ravi R., Kastan M.B., Bedi A.,
 RT Ueno K., Hardwick J.M.;
 RL "Conversion of Bcl-2 to a Bax-like death effector by caspases";
 RL Science 278:1966-1988(1997).
 RP REVIEW ON PHOSPHORYLATION.
 RX MEDLINE=21260650; Pubmed=11368354;
 RA Ruvolo P.P., Deng X., May M.S.;
 RT "Phosphorylation of Bcl2 and regulation of apoptosis";
 RL Leukemia 15:515-522(2001).
 RP PHOSPHORYLATION BY ASK1/JNK1.
 RX MEDLINE=20036804; Pubmed=10567572;
 RA Yamamoto K., Ichijo H., Korsmeyer S.J.;
 RT "BCL-2 is phosphorylated and inactivated by an ASK1/Jun N-terminal
 RT protein kinase pathway normally activated at G(2)/M.";
 RL Mol. Cell. Biol. 19:8469-8478(1999).
 RP FUNCTION: Suppresses apoptosis in a variety of cell systems
 CC including factor-dependent lymphohematopoietic and neural cells.
 CC Regulates cell death by controlling the mitochondrial membrane
 CC permeability. Appears to function in a feedback loop system with
 CC caspases. Inhibits caspase activity either by preventing the
 CC release of cytochrome c from the mitochondria and/or by binding to
 CC the apoptosis-activating factor (Apaf-1).
 CC SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
 CC Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2
 CC domains, and is necessary for anti-apoptotic activity (By
 CC similarity). Also interacts with APAF-1 and RAF-1.
 CC SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
 CC membrane of the nuclear envelope and the endoplasmic reticulum.
 CC ALTERNATIVE PRODUCTS: 2 isoforms: alpha (shown here) and beta.
 CC ARE PRODUCED BY ALTERNATIVE SPLICING.
 CC TISSUE SPECIFICITY: Expressed in a variety of tissues.
 CC DOMAIN: The BH4 domain is required for anti-apoptotic activity and
 CC for interaction with RAF-1.
 CC PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2
 CC anti-apoptotic activity. Growth factor-stimulated phosphorylation
 CC on Ser-70 by PKC is required for the anti-apoptosis activity and
 CC occurs during the G2/M phase of the cell cycle. In the absence of
 CC growth factors, Bcl2 appears to be phosphorylated by other protein
 CC kinases such as ERKs and stress-activated kinases.
 CC Dephosphorylated by protein phosphatase 2A (PP2A) (By similarity).
 CC PTM: Proteolytically cleaved by caspases during apoptosis. The
 CC cleaved protein, lacking the BH4 domain, has pro-apoptotic.
 CC promoting further caspase activity.
 CC DISEASE: Involved in follicular lymphoma (FL) (also known as type
 CC II chronic lymphatic leukemia) by a chromosomal translocation
 CC t(14;18)(q32;q21) which involves Bcl2 and immunoglobulin gene
 CC regions.
 CC SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
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 CC
 CC EMBL: M13994; AAA51813.1; ALT_SEQ.
 CC EMBL: M13995; AAA51814.1; ALT_SEQ.
 CC EMBL: M14745; AAA35591.1; -
 CC EMBL: X06487; CAA229778.1; -
 CC EMBL: S72602; AAD14111.1; ALT_SEQ

Query Match	Best Local Similarity	Score	DB 1:	Length	DB 2:	Score	DB 1:	Length	DB 2:
Matches	87; Conservative	34; Mismatches	59; Indels	55; Gaps	5; Gaps				
QY	9	DTRALVADPEYGYLRQGYCGAG	PGR	35					
Db	10	DNREIVAKYIHKISQGYEMDAGDYGAPPGAAPGCTSSPGCHTPPPASRDVART		69					
QY	36	FTQVSDLEFQGGPMMGLVAFYFGAALCAESYKNEKRLVYGOVQEMMVAUYLETRLDNI		138					
Db	130	FATVVEELFEFDGVMGIVAFEEFGGVCVCEVSRENPSLVNDIALMTEYLNRHLHTW		189					
QY	139	HSSGMAEFTALYGDGLLEARRRLREGNMKMSVRIVTLGVAALGALVYGAFFASK		193					
Db	190	QDNGGMDAFVFLYG---PSMRPLFDDSSWLSKTLTSLAL-VGACITLGAIGLHK		239					

CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
CC -----
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CC between the Swiss Institute of Bioinformatics and the EMBL outstation
CC the European Bioinformatics Institute. There are no restrictions on its
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CC -----
CC EMBL: X82461; CA57844.1; -.
DR HSP: 007817; 1MA2.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR003093; BH4.
DR InterPro: IPR000712; BCL_2.
DR Pfam: PF00452; BCL_2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PS01060; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS50062; BCL2_FAMILY; 1.
KW Apoptosis; Transmembrane.
FT DOMAIN 101 120 BH1.
FT DOMAIN 152 167 BH2.
FT TRANSMEM 181 198 POTENTIAL.
SQ SEQUENCE 204 AA: 23379 MW: 38FC6B6DDA4CA03 CRC64;

Query Match 36.8%; Score 371; DB 1; Length 204;
Best Local Similarity 42.1%; Pred. No. 2,4e-26;
Matches 82; Conservative 25; Mismatches 62; Indels 26; Gaps 4;

QY 10 TRALVADFYGYKLKQKGYC-----GAGPGEGPADPLHQAMR 47
DB 5 SLDLVEKEVSKLSQ-NEACRFSNNPNMPYLMPESTSERPGEGATGIVEEVLQALL 63
QY 48 AAGDEETFRFRRTFSDLAQLHVTGPSAQOFRTOYSDLEFGGPMWGRVAFVFGALC 107
DB 64 EATEEFELRYGRAFSDLTLSQLHTQDTAQOSFOQVMGELFRDGTWGRIVAFSFGALC 123
QY 108 ASVYKKEEPLVGOVQENWVAVLETRLADWIHSSGMAEFTALYGDGALFEARRLRE--G 165
DB 124 VESANKEMTDLPRIYQWNVNYLIEHTLQPMQENGMEAFVGLYGNNAQAQRESQERFG 183
QY 166 NMASVRYVLTGAVL 180
DB 184 RLIT-VMITGVFAL 197

Search completed: June 10, 2002, 10:32:13
Job time: 346 sec


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RESULT 4
ID 035844 PRELIMINARY: PRT: 233 AA.
AC 035844:
DT 01-JAN-1998 (TREMBlrel. 05, Created)
DT 01-JAN-1998 (TREMBlrel. 05, Last sequence update)
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)
DE BCL-XL.
GN BCL2L.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN (1)
RP SEQUENCE FROM N.A.
RC STRAIN=B6/CBA; TISSUE=THYMUS;
RX MEDLINE=98051053; PubMed=9390687;
RA Yang X.-F., Weber G.F., Cantor H.;
RT "A novel Bcl-x isoform connected to the T cell receptor regulates
RT apoptosis in T cells.";
RL EMBL: U51278; AAC53459.1; -
DR HSSP: P53563; IAF3.
DR MGD: MGI:88139; BCL2L.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR00712; BCL_2.
DR InterPro: IPR003093; BH4.
DR Pfam: PF00452; Bcl-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PS50062; BCL2_FAMILY; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS01259; BH3; 1.
DR PROSITE: PS01260; BH4_1; 1.
DR PROSITE: PS01260; BH4_2; 1.
DR PROSITE: PS50063; BH4_2; 1.
SQ SEQUENCE 233 AA; 26033 MW; 3083F2D8327E072E CRC64;

Query Match 43.2%; Score 435.5; DB 11; Length 233;
Best Local Similarity 41.8%; Pred. No. 9,6e-31;
Matches 94; Conservative 22; Mismatches 56; Indels 53; Gaps 4;

OY 11 RALVADFGYKLRKQY-----Y 28
DB 6 RELVDFELSYKLSQKGYSWQSFSDVEENRTPEARETEARETPSAINGNPSMHLADSPAY 65
OY 29 CGAGPEGEPAD-----PLHQAMRAAGDEFETRRFRRTFSDLAOLHVTGSAQOQFT 80
DB 66 NGA-TGHSSSLDAREVYIPMAAVQAOLREAGDEFELRYRRAFSDLTSQLHTPTGTAQSF 124
OY 81 QVSDLEFPGGPNMGRVAFVFGALCAESYKMEPELVGOVEMVAVLETRLDWIHS 140
DB 125 QVNNELFRGVNMGRIYAFVFGALCVESYDKEMQVLSRIASWATYLDNHLPEWIOE 184
OY 141 SGGMAEFALYGDGALREARLRG--NMASVRYVLTGAVAGAL 183
DB 185 NGGMDTFVLDYGNMAAESRKKEGFRNMFLLGTMVAGVLLGSL 229

RESULT 5
O9N1A2 PRELIMINARY: PRT: 233 AA.
AC O9N1A2:
DT 01-OCT-2000 (TREMBlrel. 15, Created)
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)
DE ANTI-APOPTOTIC REGULATOR BCL-XL.
GN BCL-XL.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suidae; Suidae; Sus.

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OX NCBI_TaxID=9823;
RN (1)
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RA Lee T.L., Canty J.M.;
RT "PCR Cloning of a Porcine bcl-xl cDNA from Heart.";
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF216205; AAF33212.1; -
DR HSSP: 007817; IMAZ.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR00712; BCL_2.
DR InterPro: IPR003093; BH4.
DR Pfam: PF00452; Bcl-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PS50062; BCL2_FAMILY; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS01259; BH3; 1.
DR PROSITE: PS01260; BH4_1; 1.
DR PROSITE: PS50063; BH4_2; 1.
SQ SEQUENCE 233 AA; 26047 MW; 2FA312818B25E17D CRC64;

Query Match 42.9%; Score 431.5; DB 6; Length 233;
Best Local Similarity 41.8%; Pred. No. 2,2e-30;
Matches 94; Conservative 21; Mismatches 57; Indels 53; Gaps 4;

OY 11 RALVADFGYKLRKQY-----Y 28
DB 6 RELVDFELSYKLSQKGYSWQSFSDVEENRTPEARETEARETPSAINGNPSMHLADSPAY 65
OY 29 CGAGPEGEPAD-----PLHQAMRAAGDEFETRRFRRTFSDLAOLHVTGSAQOQFT 80
DB 66 NGA-TGHSSSLDAREVYIPMAAVQAOLREAGDEFELRYRRAFSDLTSQLHTPTGTAQSF 124
OY 81 QVSDLEFPGGPNMGRVAFVFGALCAESYKMEPELVGOVEMVAVLETRLDWIHS 140
DB 125 QVNNELFRGVNMGRIYAFVFGALCVESYDKEMQVLSRIASWATYLDNHLPEWIOE 184
OY 141 SGGMAEFALYGDGALREARLRG--NMASVRYVLTGAVAGAL 183
DB 185 NGGMDTFVLDYGNMAAESRKKEGFRNMFLLGTMVAGVLLGSL 229

RESULT 6
O9M2S7 PRELIMINARY: PRT: 233 AA.
AC O9M2S7:
DT 01-OCT-2000 (TREMBlrel. 15, Created)
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)
DE BCL-X LONG PROTEIN.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN (1)
RP SEQUENCE FROM N.A.
RC TISSUE=OVARY;
RA Murray J.F., Dong Y.B., Leigh A.J., Scaramuzzi R.J., Carter N.D.;
RT "Bcl-x in the sheep ovary.";
RL Submitted (JUL-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF164517; AAF89532.1; -
DR HSSP: P53563; IAF3.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR00712; BCL_2.
DR InterPro: IPR003093; BH4.
DR Pfam: PF00452; Bcl-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.

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RT apoptosis during embryogenesis." ;
 RL Mol. Endocrinol. 14:1038-1052(2000).
 DR EMBL: AF088904; AAC72232.1; -
 DR HSSP: P53563; IAF3.
 DR MGD: MGI:88139; Bcl2L.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR000712; Bcl_2.
 DR InterPro: IPR003093; Bcl_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 FT NON_TER 188
 SQ SEQUENCE 188 AA; 21126 MW; 4E62F8356D248E52 CRC64;

Query Match 37.2%; Score 374.5; DB 11; Length 188;
 Best Local Similarity 42.9%; Pred. No. 1.8e-25;
 Matches 79; Conservative 16; Mismatches 38; Indels 51; Gaps 3;

QY 11 RALVADFGYKLRKQY-----V 28
 DB 6 RELVVDLFLSYKLSQKGYSWQSDVEENRTEAPEGTEAERETPSAINGNPSWHLADSPAV 65
 QY 29 CGAGPGECPAD-----PLHQAMRAAGDEFEETRRFRTPSDLAQLHTPGSAOQRT 80
 DB 66 NGA-TGHSSTLDAREVIPMAAVKQALREAGDEFEELRYRAFSDLTSQLHTPGTAQOSFE 124
 QY 81 QVSDLEFGGPNMGRVAFVFGALCAESVKNKEMEPVGVQVQEMVAVYLETFLADWHS 140
 DT 01-MAR-2001 (TREMBlrel. 16, Created)
 DT 01-MAR-2001 (TREMBlrel. 16, last sequence update)
 DB 125 QVAVNELFRGVNMGRIYAFVFGALCVESVDKEMQVLSRIASMATYTLNDHLEPWIOE 184
 QY 141 SGGW 144
 DB 185 NGGW 188

RESULT 13
 ID 035843 PRELIMINARY; PRT; 235 AA.
 AC 035843;
 DT 01-JAN-1998 (TREMBlrel. 05, Created)
 DT 01-JAN-1998 (TREMBlrel. 05, last sequence update)
 DT 01-DEC-2001 (TREMBlrel. 19, last annotation update)
 DE BCL-X-GAMMA.
 GN BCL2L.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OC NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN=B6/CBA; TISSUE=THYMUS;
 RX MEDLINE=98051053; PubMed=9390687;
 RA Yang X.-F., Weber G.F., Cantor H.;
 RT "A novel Bcl-x isoform connected to the T cell receptor regulates
 RT apoptosis in T cells."
 RL Immunity 7:629-639(1997).
 DR EMBL: U51277; AAC33458.1; -
 DR HSSP: P53563; IAF3.
 DR MGD: MGI:88139; Bcl2L.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR000712; Bcl_2.
 DR InterPro: IPR003093; BH4.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.

DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 SQ SEQUENCE 235 AA; 26122 MW; 649D914C2D5378F6 CRC64;

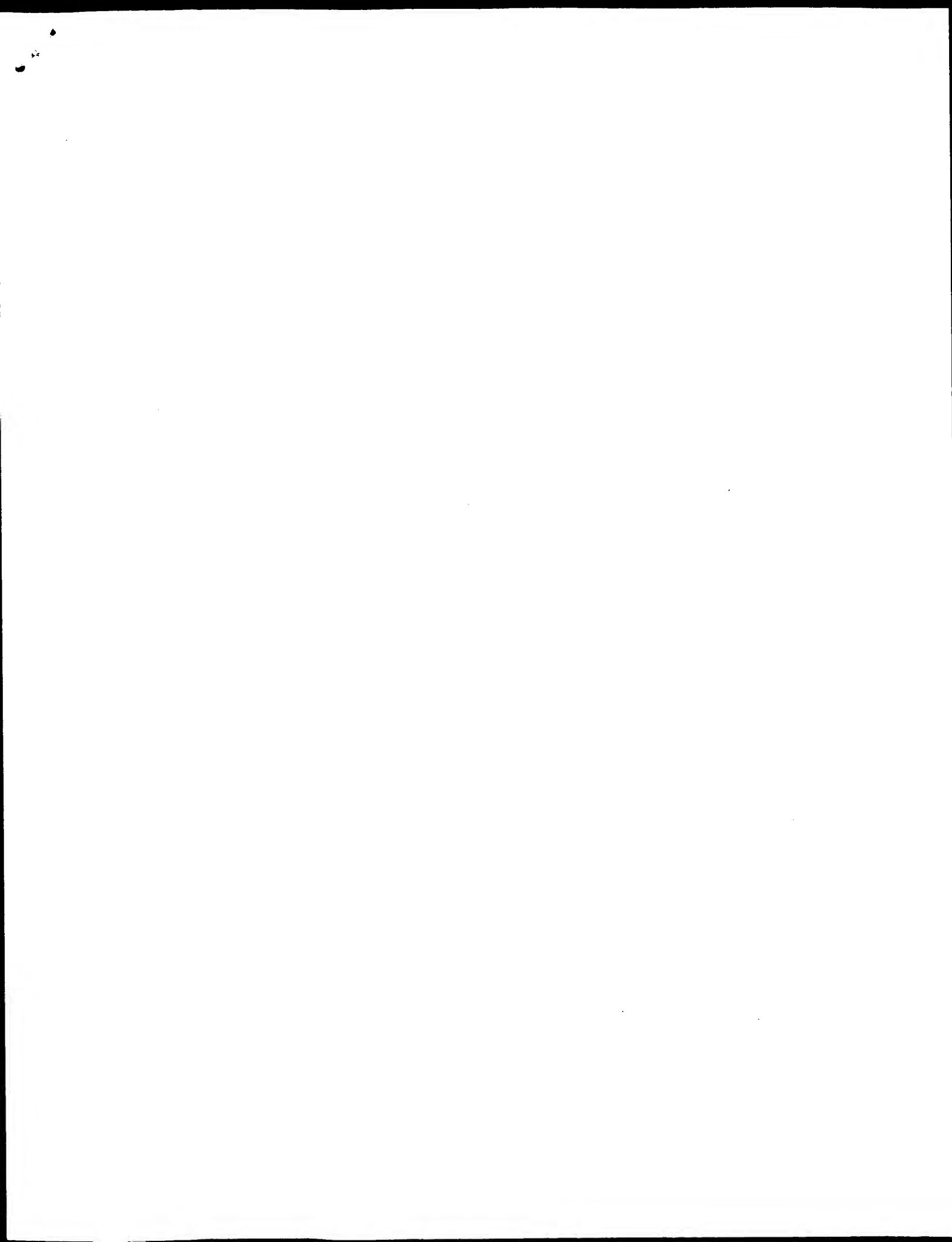
Query Match 37.2%; Score 374.5; DB 11; Length 235;
 Best Local Similarity 42.9%; Pred. No. 2.4e-25;
 Matches 79; Conservative 16; Mismatches 38; Indels 51; Gaps 3;

QY 11 RALVADFGYKLRKQY-----V 28
 DB 6 RELVVDLFLSYKLSQKGYSWQSDVEENRTEAPEGTEAERETPSAINGNPSWHLADSPAV 65
 QY 29 CGAGPGECPAD-----PLHQAMRAAGDEFEETRRFRTPSDLAQLHTPGSAOQRT 80
 DB 66 NGA-TGHSSTLDAREVIPMAAVKQALREAGDEFEELRYRAFSDLTSQLHTPGTAQOSFE 124
 QY 81 QVSDLEFGGPNMGRVAFVFGALCAESVKNKEMEPVGVQVQEMVAVYLETFLADWHS 140
 DT 01-MAR-2001 (TREMBlrel. 16, Created)
 DT 01-MAR-2001 (TREMBlrel. 16, last sequence update)
 DB 125 QVAVNELFRGVNMGRIYAFVFGALCVESVDKEMQVLSRIASMATYTLNDHLEPWIOE 184
 QY 141 SGGW 144
 DB 185 NGGW 188

RESULT 14
 ID 09H1R6 PRELIMINARY; PRT; 188 AA.
 AC 09H1R6;
 DT 01-MAR-2001 (TREMBlrel. 16, Created)
 DT 01-MAR-2001 (TREMBlrel. 16, last sequence update)
 DT 01-DEC-2001 (TREMBlrel. 19, last annotation update)
 DE BA243J16.1.1 (BCL2-Like 1 (ISOFORM 1)) (FRAGMENT).
 GN BCL2L.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 OC NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC Brown A.;
 RL Submitted (MAY-2001) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AL160175; CAC10003.1; -
 DR HSSP: 007817; 1LXL
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR000712; Bcl_2.
 DR InterPro: IPR003093; BH4.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 FT NON_TER 188
 SQ SEQUENCE 188 AA; 21029 MW; 7074B6095145C324 CRC64;

Query Match 37.1%; Score 373.5; DB 4; Length 188;
 Best Local Similarity 42.9%; Pred. No. 2.2e-25;
 Matches 79; Conservative 16; Mismatches 38; Indels 51; Gaps 3;

QY 11 RALVADFGYKLRKQY-----V 28
 DB 6 RELVVDLFLSYKLSQKGYSWQSDVEENRTEAPEGTEAERETPSAINGNPSWHLADSPAV 65
 QY 29 CGAGPGECPAD-----PLHQAMRAAGDEFEETRRFRTPSDLAQLHTPGSAOQRT 80
 DB 66 NGA-TGHSSTLDAREVIPMAAVKQALREAGDEFEELRYRAFSDLTSQLHTPGTAQOSFE 124



GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 10, 2002, 10:25:47 ; Search time 55.16 Seconds
(without alignments)
388.637 Million cell updates/sec

Title: US-09-155-327E-9

Perfect score: 1009
Sequence: 1 MATPASTPDRALVADFEVGV.....LTGAVLGLALVYGAFFASK 193

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 747574 seqs, 111073796 residues

Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%
Listing first 45 summaries

Database :

1: A_Geneseq_032802.*
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23: /SIDSL/gcgdata/hold-geneseq/geneseqp-emb1/AA2001.DAT.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	1006	99.7	193	20	AAV05531
2	1002	99.3	193	20	AAW61391
3	1002	99.3	193	20	AAW67391
4	997	98.8	192	20	AAW97393
5	997	98.8	193	20	AAV05530
6	992	98.3	193	20	AAW61392
7	992	98.3	193	20	AAW67392
8	990	98.1	193	18	AAW36047
9	990	98.1	193	20	AAV05532
10	987	97.8	192	20	AAW97394
11	970.5	96.2	192	20	AAV05533

12	879	87.1	168	18	AAW36048
13	756	74.9	365	19	AAW59884
14	429.5	42.6	411	22	AAU00219
15	425.5	42.2	233	22	AAW73303
16	424.5	42.1	233	16	AAW68887
17	424.5	42.1	233	17	AAW05821
18	424.5	42.1	233	18	AAW31530
19	424.5	42.1	233	21	AAW83223
20	424.5	42.1	233	21	AAV69969
21	424.5	42.1	233	22	AAW64262
22	424.5	42.1	233	22	AAW50538
23	424.5	42.1	233	22	AAW47515
24	422	41.8	225	18	AAW19396
25	421.5	41.9	233	22	AAW73304
26	412.5	40.9	239	22	AAW64037
27	409	40.5	236	22	AAW35131
28	408.5	40.5	239	20	AAW87810
29	408.5	40.5	239	22	AAW74127
30	408.5	40.5	239	22	AAW35130
31	406.5	40.3	239	9	AAW80987
32	406.5	40.3	239	14	AAW42312
33	406.5	40.3	239	16	AAW70331
34	406.5	40.3	239	16	AAW71404
35	406.5	40.3	239	19	AAW40217
36	406.5	40.3	239	20	AAW87812
37	406.5	40.3	239	22	AAE08573
38	406.5	40.3	239	22	AAW64035
39	406.5	40.3	239	22	AAW64036
40	406.5	40.3	239	22	AAW74129
41	406.5	40.3	239	22	AAW48388
42	406.5	40.3	239	22	AAW50537
43	406.5	40.3	272	19	AAW21120
44	406.5	40.3	485	22	AAU00222
45	404	40.0	232	17	AAW01019

ALIGNMENTS

RESULT 1
ID AAY05531 standard; Protein; 193 AA.
XX AAY05531;
XX
XX
XX 05-JUL-1999 (first entry)
XX
XX Mouse Bcl-w protein essential for spermatogenesis.
XX
XX Spermatogenesis; Bcl-3; Bcl-2; mouse; fertility; infertility;
XX animal model.
XX
XX Mus sp.
XX
XX WO9913710-A1.
XX
XX 25-MAR-1999.
XX
XX 16-SEP-1998; 98WO-AU00764.
XX
XX 16-SEP-1997; 97AU-0009228.
XX
XX
XX (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.
XX
XX Adams J, Cory S, Gibson L, Koentgen F, Print C;
XX WPI; 1999-243890/20.
XX N-PSDB; AAX25133.
XX
XX An animal model exhibiting reduced levels of a Bcl-w protein and/or
XX protein associated with Bcl-w
XX
XX Claim 2; Page 35; 52pp; English.
XX

Mouse bcl-w protei
Amino acid sequenc
Bcl-XL-DTR apoptos
Rat wild-type Bcl-X
Human thymus BCL-X
Bcl-XL protein. H
Human anti-apoptot
Bcl-X polypeptide.
Human Bcl-XL prote
Human Bcl-XL prote
Protein encoded by
"Deputy1" (RTM)-1
Mutant rat Bcl-XL
Human Bcl-2 protei
Murine Bcl-2. Mus
A human Bcl-2 prot
Human bcl-2. Homo
Human Bcl-2. Homo
Sequence of bcl-2-
Bcl-2 oncogene pro
Human bcl-2 protei
Human bcl-2 alpha
Human bcl-2. Homo
A human Bcl-2-alph
Human Bcl-2 protei
Human Bcl-2 protei
Human Bcl-2 protei
Human Bcl-2 protei
Human Bcl-2 protei
Human bcl2 proto-o
Lfn-Bcl-XL apoptos
Apoptosis-blockin

XX The present sequence is mouse Bcl-w, a pro-survival member of the
 CC Bcl-2 family which is widely expressed and which is essential for
 CC spermatogenesis. The invention relates generally to a method of
 CC treatment and to an animal model for the identification of
 CC molecules and genetic sequences useful for inducing or reducing
 CC fertility of male animals. Methods are provided for the treatment
 CC of infertility, or for reducing fertility, by modulating
 CC spermatogenesis. An animal model carries a mutation is at least
 CC one allele of the human or murine bcl-w gene (see AAX25132-35) or in
 CC a gene associated with bcl-w. Such animals have disorganised
 CC seminiferous tubules and are substantially infertile, but possess no
 CC other major abnormalities as determined by histological examination.
 CC They can be used to screen for therapeutic molecules including
 CC genetic sequences capable of inducing, enhancing or otherwise
 CC facilitating spermatogenesis in animals, or which can induce
 CC infertility.
 CC
 SQ Sequence 193 AA;

Query Match 99.7%; Score 1006; DB 20; Length 193;
 Best Local Similarity 99.5%; Pred. No. 5.5e-102;
 Matches 192; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MATPASTPDTRALVADVGVYRLRQKGYVCGAGPEGPADPLHOAMRAAGDEFETRFRRT 60
 Db 1 matpaspdttralvadivgyklrqkyvcgagpgspadplhgamraagdefetrfrt 60
 QY 61 FSDLAQLHVTGPSAQORFTQVSDELFOGGPMMGRVAFVFGALCAESVKNKEMEPYVG 120
 Db 61 fsdlaqlhvtgpsaqgrftqvsdeliqgppmwgrlvaftvfgaalcaesvknkemeplyg 120
 QY 121 QVQDMWVAYLETRLADWTHSSGMAEFETALYGDGALBARRLRGNMAVSVTVLTGAVAL 180
 Db 121 qvqdmwvayletrladwihssgmaeftalygdgaleearlrregmwsvrtvltgaval 180
 QY 181 GALVTMGAFPAASK 193
 Db 181 galvtvgafpask 193

RESULT 2
 AAM61391
 ID AAM61391 standard; Protein: 193 AA.
 AC AAM61391;

XX 02-OCT-1998 (first entry)
 DT Rat bcl-y protein.
 DE Rat bcl-y protein.
 KW bcl-y; bcl-2; cell death pathway; apoptotic; apoptosis; rat.
 OS Rattus sp.
 XX US5789201-A.
 PN 04-AUG-1998.
 PD 11-FEB-1997; 97US-0798897.
 PF 23-FEB-1996; 96US-0012201.
 PR 11-FEB-1997; 97US-0798897.
 XX (COCE-) COCENSYS INC.
 PA Guastella J;
 PI WPI; 1998-446079/38.
 DR N-PSDB; V283333.
 XX Nucleic acids encoding B-cell lymphoma-y protein - useful for

PT producing recombinant protein for use in treating uncontrolled cell
 PT growth e.g. cancers
 XX Example; Fig 3a; 27pp; English.

XX The mammalian bcl-y protein is a member of the bcl-2 family, components
 CC in the cell death pathway. The bcl-2 family have both apoptotic activity
 CC and the apoptosis blocking activity. bcl-y falls in the apoptosis
 CC activity category. The recombinant protein may be used to prevent
 CC uncontrolled cell growth, either by its direct administration to
 CC recombinant genetic constructs to increase its expression in vivo. Also,
 CC antisense constructs can be used in disorders where prevention of cell
 CC death is desired.
 CC
 SQ Sequence 193 AA;

Query Match 99.3%; Score 1002; DB 19; Length 193;
 Best Local Similarity 99.0%; Pred. No. 1.5e-101;
 Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MATPASTPDTRALVADVGVYRLRQKGYVCGAGPEGPADPLHOAMRAAGDEFETRFRRT 60
 Db 1 matpaspdttralvadivgyklrqkyvcgagpgspadplhgamraagdefetrfrt 60
 QY 61 FSDLAQLHVTGPSAQORFTQVSDELFOGGPMMGRVAFVFGALCAESVKNKEMEPYVG 120
 Db 61 fsdlaqlhvtgpsaqgrftqvsdeliqgppmwgrlvaftvfgaalcaesvknkemeplyg 120
 QY 121 QVQDMWVAYLETRLADWTHSSGMAEFETALYGDGALBARRLRGNMAVSVTVLTGAVAL 180
 Db 121 qvqdmwvayletrladwihssgmaeftalygdgaleearlrregmwsvrtvltgaval 180
 QY 181 GALVTMGAFPAASK 193
 Db 181 galvtvgafpask 193

RESULT 3
 AAM97391
 ID AAM97391 standard; Protein: 193 AA.
 AC AAM97391;

XX 20-MAY-1999 (first entry)
 DT The rat bcl-y protein.
 DE The rat bcl-y protein.
 KW Rat bcl-y protein; Rbcl-y; human bcl-y protein; Hbcl-y; bcl-2 homologue;
 KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
 KW head trauma; Alzheimer's Disease; neural; muscular degenerative disease;
 KW multiple sclerosis; myocardial infarction; vitally induced cell death;
 KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
 KW premature cell death; cell death stimulator; prolonged cell life span;
 KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
 KW parasite.
 XX Rattus sp.
 OS US5883229-A.
 PN 16-MAR-1999.
 PD 25-NOV-1997; 97US-0978523.
 PF 23-FEB-1996; 96US-0012201.
 PR 11-FEB-1997; 97US-0798897.
 XX (COCE-) COCENSYS INC.
 PA Guastella J;
 PI WPI; 1998-446079/38.
 DR N-PSDB; V283333.
 XX Nucleic acids encoding B-cell lymphoma-y protein - useful for

DR WPI: 1999-214150/18.
 DR N-PSDB: AAX15945.
 XX
 PT Novel bcl-Y homologues of the rat and human bcl-2 protein - useful
 PT for modulating programmed cell death
 PS Disclosure: Columns 15-18; 26pp; English.
 XX
 CC The present sequence represents rat bcl-Y protein (Rbcl-Y). The
 CC specification also describes human bcl-Y protein (Hbcl-Y). Rbcl-Y and
 CC Hbcl-Y are homologues of the bcl-2 protein thought to be involved in
 CC programmed cell death (apoptosis and necrosis). Rbcl-Y and Hbcl-Y
 CC proteins may be used to treat conditions associated with a disruption of
 CC the cell death pathway. If they act as cell death inhibitors, they may be
 CC used in therapies to treat subjects suffering from: strokes, head trauma,
 CC Alzheimer's disease, neural and muscular degenerative diseases
 CC (especially multiple sclerosis), myocardial infarction, vitally induced
 CC cell death, aging, spinal cord injuries and amyotrophic lateral
 CC sclerosis- conditions where cells under go premature cell death as a
 CC result of triggers which may or may not be apparent. They may also be
 CC used in this way to develop cell lines which remain viable in culture for
 CC an extended period. In contrast, if they act as cell death stimulators,
 CC Rbcl-Y and Hbcl-Y may be used to treat conditions associated with
 CC prolonged cell life span such as cancer (especially kaposi's sarcoma and
 CC lung cancer) and auto/hyperimmune diseases. They may also be used to
 CC cause cell death in, and hence control, parasites.
 CC
 SQ Sequence 193 AA;
 XX
 Query Match 99.3%; Score 1002; DB 20; Length 193;
 Best Local Similarity 99.0%; Pred. No. 1.5e-101;
 Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
 QY 1 MATPASTPDRALVADVFVGYRLRQKGYVCGAGPEGPADPLHQAMRAAGDEFETRRRTF 60
 Db 1 matpastpdraltvadvtvgyklrqkgyvcgagpgepadplhqamaaagdefetrrtfrt 60
 QY 61 FSDLAQLHTPTGSAOQRFQVSDLEFQSGPNMGRALVAFVFGALCAESVNMKEPVLVG 120
 Db 61 fsdlaaqlhvtprgsaqgrftqvsdelitqgpnwgrlvaftvfgalcaesvnmkempylvg 120
 QY 121 VQDMWVAVLETRLDWVHSSGMAEFTALYGDALBEARLRRCGNMAVRYTLTGAVALG 180
 Db 121 vqdmwvavyletrldwvhssegmaeftalysgdalbearrlrregnmasvrytlvtlgaval 180
 QY 181 GALVTGAFEPASK 193
 Db 181 galvtvgafepask 193
 RESULT 4
 ID AAW97393 standard; Protein: 192 AA.
 XX
 AC AAW97393:
 XX
 DT 20-MAY-1999 (first entry)
 DE Protein sequence of the specification.
 XX
 KW Rat bcl-Y protein; Rbcl-Y; human bcl-Y protein; Hbcl-Y; bcl-2 homologue;
 KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
 KW head trauma; Alzheimer's Disease; neural; muscular degenerative disease;
 KW multiple sclerosis; myocardial infarction; vitally induced cell death;
 KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
 KW premature cell death; cell death stimulator; prolonged cell life span;
 KW kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
 KW parasite.
 XX
 OS Unidentified.
 XX
 PN US5863229-A.

XX
 PD 16-MAR-1999.
 XX
 PE 25-NOV-1997; 97US-0978523.
 XX
 PR 23-FEB-1996; 96US-0012201.
 PR 11-FEB-1997; 97US-0798897.
 PR 25-NOV-1997; 97US-0978523.
 XX
 PA (COCF-) COCENSYS INC.
 XX
 PI Guastella J;
 XX
 DR WPI: 1999-214150/18.
 XX
 PT Novel bcl-Y homologues of the rat and human bcl-2 protein - useful
 PT for modulating programmed cell death
 PS Disclosure: Columns 19-20; 26pp; English.
 XX
 CC The specification describes rat bcl-Y protein (Rbcl-Y) and human bcl-Y
 CC protein (Hbcl-Y). Rbcl-Y and Hbcl-Y are homologues of the bcl-2 protein
 CC thought to be involved in programmed cell death (apoptosis and necrosis).
 CC Rbcl-Y and Hbcl-Y proteins may be used to treat conditions associated
 CC with a disruption of the cell death pathway. If they act as cell death
 CC inhibitors, they may be used in therapies to treat subjects suffering
 CC from: strokes, head trauma, Alzheimer's Disease, neural and muscular
 CC degenerative diseases (especially multiple sclerosis), myocardial
 CC infarction, vitally induced cell death, aging, spinal cord injuries and
 CC amyotrophic lateral sclerosis- conditions where cells under go premature
 CC cell death as a result of triggers which may or may not be apparent.
 CC They may also be used in this way to develop cell lines which remain
 CC viable in culture for an extended period. In contrast, if they act as
 CC cell death stimulators, Rbcl-Y and Hbcl-Y may be used to treat
 CC conditions associated with prolonged cell life span such as cancer
 CC (especially kaposi's sarcoma and lung cancer) and auto/hyperimmune
 CC diseases. They may also be used to cause cell death in, and hence
 CC control, parasites.
 CC
 SQ Sequence 192 AA;
 XX
 Query Match 98.8%; Score 997; DB 20; Length 192;
 Best Local Similarity 99.0%; Pred. No. 5.3e-101;
 Matches 190; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
 QY 2 ATPASTPDRALVADVFVGYRLRQKGYVCGAGPEGPADPLHQAMRAAGDEFETRRRTF 61
 Db 1 atpastpdraltvadvtvgyklrqkgyvcgagpgepadplhqamaaagdefetrrtfrt 60
 QY 62 SDIAQLHTPTGSAOQRFQVSDLEFQSGPNMGRALVAFVFGALCAESVNMKEPVLVG 121
 Db 61 sdlaaqlhvtprgsaqgrftqvsdelitqgpnwgrlvaftvfgalcaesvnmkempylvg 120
 QY 122 VQDMWVAVLETRLDWVHSSGMAEFTALYGDALBEARLRRCGNMAVRYTLTGAVALG 181
 Db 121 vqdmwvavyletrldwvhssegmaeftalysgdalbearrlrregnmasvrytlvtlgaval 180
 QY 182 ALVTGAFEPASK 193
 Db 181 alvtvgafepask 192
 RESULT 5
 ID AAY05530 standard; Protein: 193 AA.
 XX
 AC AAY05530:
 XX
 DT 05-JUL-1999 (first entry)
 DE Human Bcl-w protein essential for spermatogenesis.
 XX

[illegible]

KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
 KW head trauma; Alzheimer's Disease; neural; muscular degenerative disease;
 KW multiple sclerosis; myocardial infarction; vitally induced cell death;
 KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
 KW premature cell death; cell death stimulator; prolonged cell life span;
 KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
 KW parasite.

OS Homo sapiens.
 PN US5883229-A.
 XX

PD 16-MAR-1999.

PF 25-NOV-1997; 97US-0978523.

PR 23-FEB-1996; 96US-0012201.

PR 11-FEB-1997; 97US-0798897.

PR 25-NOV-1997; 97US-0978523.

XX (COCE-) COCENSTYS INC.

PA Guastella J;
 PI WPI: 1999-214150/18.
 DR N-PSDB; AAX15946.

PT Novel bcl-y homologues of the rat and human bcl-2 protein - useful
 for modulating programmed cell death

PS Claim 1; Columns 17-18; 26pp; English.

XX The present sequence represents human bcl-y protein (Hbcl-y). The
 CC specification also describes rat bcl-y protein (Rbcl-y). Rbcl-y and
 CC Hbcl-y are homologues of the bcl-2 protein thought to be involved in
 CC programmed cell death (apoptosis and necrosis). Rbcl-y and Hbcl-y
 CC proteins may be used to treat conditions associated with a disruption of
 CC the cell death pathway. If they act as cell death inhibitors, they may be
 CC used in therapies to treat subjects suffering from: strokes, head trauma,
 CC Alzheimer's Disease, neural and muscular degenerative diseases
 CC (especially multiple sclerosis), myocardial infarction, vitally induced
 CC cell death, aging, spinal cord injuries and amyotrophic lateral
 CC sclerosis- conditions where cells under go premature cell death as a
 CC result of triggers which may or may not be apparent. They may also be
 CC used in this way to develop cell lines which remain viable in culture for
 CC an extended period. In contrast, if they act as cell death stimulators,
 CC Rbcl-y and Hbcl-y may be used to treat conditions associated with
 CC prolonged cell life span such as cancer (especially Kaposi's sarcoma and
 CC lung cancer) and auto/hyperimmune diseases. They may also be used to
 CC cause cell death in, and hence control, parasites.

XX Sequence 193 AA;

Query Match 98.3%; Score 992; DB 20; Length 193;
 Best Local Similarity 97.9%; Pred. No. 1.9e-100;

Matches 189; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 MATASPTPTRALVADFGVRLRQKGYVCGAGGEGPADPLHQAMRAAGDEFERFRT 60
 Db 1 matpasapdtrralvadfgvrlrqkgyvcgagpgepadplhqamaaagdefetrirt 60
 QY 61 FSDLAQIHVTPSAAOQRTQVSDLEFGGPNMGRVAFVFGAALCAESVKNKEMPLVG 120
 Db 61 fsdlaaqihvtpsaagqrtfqsdelifggpnmgrlvaftfgaalcaesvknkemplvg 120
 QY 121 QVQDMWVAVLETSLADWTHSSGMAEFALYGDALAEARLRREGNMASVRTLGAVAL 180
 Db 121 qvgdmwvavletsladwthssgmaeftal ygdalaearrlregnmasvrtvlgaaval 180
 QY 181 GALVTGAFPAK 193
 Db 181 galvtgafpask 193

RESULT 8

AAW36047
 ID AAW36047 standard; Protein; 193 AA.

AC AAW36047;

DT 22-APR-1998 (first entry)

DE Human bcl-w protein.

KW Bcl-w; apoptosis; bcl-2; cell survival; treatment; therapy; cancer;
 diagnosis; degenerative disease.

OS Homo sapiens.

PN W09735971-A1.

PD 02-OCT-1997.

PF 27-MAR-1997; 97WO-AU00199.

PR 27-MAR-1996; 96AU-0008965.

PA (AMRA-) AMRAD OPERATIONS PTY LTD.

PI Adams JM, Cory S, Gibson LM, Holmgren SP;

DR WPI: 1997-489635/45.

DR N-PSDB; AAT96577.

PT Nucleic acid encoding apoptosis related gene bcl-w - used to induce
 or inhibit cell survival, e.g. for treatment of cancer and
 degenerative diseases

PS Claim 6; Page 48; 86pp; English.

XX This sequence represents a novel human protein, bcl-w, encoded by the
 CC bcl-2 gene family and extracted from an adult brain library. This gene
 CC promotes cell survival, so its modulation is useful in treatment of
 CC cancer or auto-immune diseases, degenerative diseases (e.g. stroke,
 CC Alzheimer's disease, myocardial infarct, muscular degeneration, hypoxia,
 CC ischaemia, human immunodeficiency virus infection or in cell transplants.
 CC Up-regulation of the gene can also be used to modify cell lines cultured
 CC in vivo, e.g. to develop new lines, to facilitate isolation of hybridomas
 CC and to increase survival of primary explants during genetic modification.
 CC It can be used to produce recombinant bcl-w for therapy, diagnosis,
 CC antibody production or screening of potential modulators.

XX Sequence 193 AA;

Query Match 98.1%; Score 990; DB 18; Length 193;
 Best Local Similarity 97.4%; Pred. No. 3.1e-100;

Matches 188; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 1 MATPASTPTRALVADFGVRLRQKGYVCGAGGEGPADPLHQAMRAAGDEFERFRT 60
 Db 1 matpasapdtrralvadfgvrlrqkgyvcgagpgepadplhqamaaagdefetrirt 60
 QY 61 FSDLAQIHVTPSAAOQRTQVSDLEFGGPNMGRVAFVFGAALCAESVKNKEMPLVG 120
 Db 61 fsdlaaqihvtpsaagqrtfqsdelifggpnmgrlvaftfgaalcaesvknkemplvg 120
 QY 121 QVQDMWVAVLETSLADWTHSSGMAEFALYGDALAEARLRREGNMASVRTLGAVAL 180
 Db 121 qvgdmwvavletsladwthssgmaeftal ygdalaearrlregnmasvrtvlgaaval 180
 QY 181 GALVTGAFPAK 193
 Db 181 galvtgafpask 193

RESULT 9
AAV05332
ID AAV05332 standard; Protein; 193 AA.
AC AAV05332;
XX
XX 05-JUL-1999 (first entry)
DT
XX Human Bcl-w protein essential for spermatogenesis.
XX
XX Spermatogenesis; Bcl-3; Bcl-2; human; fertility; infertility;
KW animal model.
XX
XX Homo sapiens.
XX
XX MO9913710-A1.
XX
XX 25-MAR-1999.
XX
XX 16-SEP-1998; 98WO-AU00764.
XX
XX 16-SEP-1997; 97AU-0009228.
XX
XX (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.
XX
XX Adams J, Cory S, Gibson L, Koentgen F, Print C;
PI WPI; 1999-243890/20.
XX
XX N-PSDB; AAX25134.
DR
XX An animal model exhibiting reduced levels of a Bcl-w protein and/or
PT protein associated with Bcl-w
XX
XX Disclosure; Page 37; 52pp; English.
XX
XX The present sequence is described of a derivative of human Bcl-w
CC (see also AAV05330), a pro-survival member of the Bcl-2 family that
CC is widely expressed and which is essential for spermatogenesis.
CC The invention relates generally to a method of treatment and to an
CC animal model for the identification of molecules and genetic
CC sequences useful for inducing or reducing fertility of male animals.
CC Methods are provided for the treatment of infertility, or for
CC reducing fertility, by modulating spermatogenesis. An animal model
CC carries a mutation in at least one allele of the human or murine
CC bcl-w gene (see AAX25132-35) or in a gene associated with bcl-w.
CC Such animals have disorganised seminiferous tubules and are
CC substantially infertile, but possess no other major abnormalities
CC as determined by histological examination. They can be used to
CC screen for therapeutic molecules including genetic sequences
CC capable of inducing, enhancing or otherwise facilitating
CC spermatogenesis in animals, or which can induce infertility.
XX
XX Sequence 193 AA:

Query Match 98.1%; Score 990; DB 20; Length 193;
Best Local Similarity 97.4%; Pred. No. 3, 1e-100;
Matches 188; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 1 MATPASTPDRALVADFGVGRKQKGYVCGAGPESPADPLHQARRAGDEFEFRRT 60
DB 1 matpasapdralfvadfgvgrkqkyvsgagsgpaadplhqamraagdeffrt 60
QY 61 FSLAQLAVTPGSAOQRTQVSDLEFGGPMKRLVAFVFGAICASVKNKEPLVG 120
DB 61 fslaaqlavtpgsaqrtqvsdelffggpmgrlvaflfgaaicaesvknkemplvg 120
QY 121 OVODMMVAVLEPRLADMIHSSGGMAEFALXGGALEERRLREGMMASRVVLGAVAL 180
DB 121 ovodmmvavletrldvmlhssggmaefalxgdgalearlrlegmwasrvvlcgaval 180
QY 181 GALVTVGAFASK 193

Db 181 galvtvgaffask 193
|||||
RESULT 10
AAW97394
ID AAW97394 standard; Protein; 192 AA.
AC AAW97394;
XX
XX 20-MAY-1999 (first entry)
DT
XX Mammalian bcl-y protein.
XX
XX Rat bcl-y protein; Rbcl-y; human bcl-y protein; Hbcl-y; bcl-2 homologue;
KW programmed cell death; apoptosis; necrosis; cell death inhibitor; stroke;
KW head trauma; Alzheimer's Disease; neural; muscular degenerative disease;
KW multiple sclerosis; myocardial infarction; vitally induced cell death;
KW aging; spinal cord injury; amyotrophic lateral sclerosis; cancer;
KW premature cell death; cell death stimulator; prolonged cell life span;
KW Kaposi's sarcoma; lung cancer; autoimmune; hyperimmune disease;
KW parasite.
XX
XX Mammalia.
XX
XX US5883229-A.
XX
XX 16-MAR-1999.
XX
XX 25-NOV-1997; 97US-0978523.
XX
XX 23-FEB-1996; 96US-0012201.
XX
XX 11-FEB-1997; 97US-0798897.
XX
XX 25-NOV-1997; 97US-0978523.
XX
XX (COCE-) COCENSYS INC.
XX
XX Guastella J;
PI WPI; 1999-214150/18.
XX
XX Novel bcl-y homologues of the rat and human bcl-2 protein - useful
PT for modulating programmed cell death
XX
XX Claim 2; Columns 19-22; 26pp; English.
XX
XX The present sequence represents a mammalian bcl-y protein.
CC The specification describes rat bcl-y protein (Rbcl-y) and human bcl-y
CC protein (Hbcl-y). Rbcl-y and Hbcl-y are homologues of the bcl-2 protein
CC thought to be involved in programmed cell death (apoptosis and necrosis).
CC Rbcl-y and Hbcl-y proteins may be used to treat conditions associated
CC with a disruption of the cell death pathway. If they act as cell death
CC inhibitors, they may be used in therapies to treat subjects suffering
CC from: strokes, head trauma, Alzheimer's Disease, neural and muscular
CC degenerative diseases (especially multiple sclerosis), myocardial
CC infarction, vitally induced cell death, aging, spinal cord injuries and
CC amyotrophic lateral sclerosis - conditions where cells under go premature
CC cell death as a result of triggers which may or may not be apparent.
CC They may also be used in this way to develop cell lines which remain
CC viable in culture for an extended period. In contrast, if they act as
CC cell death stimulators, Rbcl-y and Hbcl-y may be used to treat
CC conditions associated with prolonged cell life span such as cancer
CC (especially Kaposi's sarcoma and lung cancer) and auto/hyperimmune
CC diseases. They may also be used to cause cell death in, and hence
CC control, parasites.
XX
XX Sequence 192 AA:

Query Match 97.8%; Score 987; DB 20; Length 192;
Best Local Similarity 97.9%; Pred. No. 6, 6e-100;
Matches 188; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY	2	ATPASTEDTRALVADPFVGYRLROKGYCGAGPGECPADPLHOMRAMAGCEFEETREPT	61
	1		
Db	1	atpsapoptulrivedfvygkrlrgyvcgagpgcgpacpdlngamraagdeferrftrf	60
QY	62	SDLAOLHVTPEGSAOORFTQVSDLEFOGCPNMGHLVAFVFGAALCAESYKNEKEMLVGO	121
	61	sdlaaqlhvtpegsaqgrftrfygsdelfgsgpwmgrlvaftfigaalcaesynkemelpvsg	120
Db			
QY	122	VQDMNVATLETRLADNTHSSGGAEEFPAVLKVGDDGLEEARRLRECNMASTVTVLTGANAIG	181
	121	vqdmnvatletrladnthssggaaefpavlkvddgleearlrrecnmastvvtvltganaig	180
Db			
QY	182	ALVTGGAFFASK	193
Db	181	alvtvgafask	192

RESULT	11
AAV05533	
ID	AAV05533 standard; Protein; 192 AA

AC AAY05533;
XX
DT 05-JUL-1999 (first entry)
XX
DE Mouse Bcl-*w* protein derivative.

Mus sp. OS

PN W09913710-A1.

PD 25-MAR-1999

16-SEP-1998; 98WO-A000764

PR 16-SEP-1997; 97AU-0009228

PA (HALL-) HALL INST MEDICAL RES WALTER & ELIZA

Adams J, Cory S, Gibson L, Koentgen F, Prince C

DR WPI; 1999-243890/20
DR N-PCPB; 28V35135

XX An animal model of
Pt

protein associated with Bcl-2

PS Disclosure; Page 39; 22pp, English
XX

The present sequence is described of a derivative of mouse Bcl-w (see also [MAY05531](#)), a pro-survival member of the Bcl-2 family that is widely expressed and which is essential for spermatogenesis. The derivative lacks the 24 N-terminal amino acids of Bcl-w. The invention relates generally to a method of treatment and to an animal model for the identification of molecules and genetic sequences useful for inducing or reducing fertility of male animals. Methods are provided for the treatment of infertility, or for reducing fertility, by modulating spermatogenesis. An animal model carrying a mutation is at least one allele of the human or murine bcl-w gene (see [XAG25132-35](#)) or in a gene associated with bcl-w. Such animals have disorganized seminiferous tubules and are substantially infertile, but possess no other major abnormalities as determined by histological examination. They can be used to screen for therapeutic molecules including genetic sequences capable of inducing, enhancing or otherwise facilitating spermatogenesis in animals, or which can induce infertility.

SQ Sequence 192 AA.

Query Match	96.2%;	Score 970.5;	DB 20;	Length 192;
Best Local Similarity	96.4%;	Pred. No. 4.2e-98;		
Matches 186;	Conservative 4;	Mismatches 2;	Indels 1;	Gaps 1;

Oy	61	FSDLAOLHTVPGSAOQRFTOVSDBLFQGGNGRGLYAFVYFGAALCAESYNNKMEPLVNG	120
Db	1	mptpasipdtrtalrvadfrgyrlrlqkyvcgsqpgpgeaaprlhqamraagdefetfrtt	60
Oy	1	MATPASTEDTDRALVADFEYGRILRQRKGVYCGSGPEGEAABDLHOAMRAAGDEFETFRRT	60
Db	1	mptpasipdtrtalrvadfrgyrlrlqkyvcgsqpgpgeaaprlhqamraagdefetfrtt	60
Oy	61	FSDLAOLHTVPGSAOQRFTOVSDBLFQGGNGRGLYAFVYFGAALCAESYNNKMEPLVNG	120
Db	61	fsdlaaqlhvpvpsaqgrfltvgsdelffgsgpnwrlvalviffgaalcaesynkmemplvng	120
Oy	121	QVQOMMVAVYLETTRLADWTHSSGSGAEEFTALCGDGLPEARLREGNNASVYRTVTGAVAL	180
Db	121	qvqdmvlvaylerlradwthssgsgwadftcalygdgaledatrrllregnwa-vstvtgavall	175
Oy	181	GALVTVGAFFASK	193
Db	180	galvtvgaaffask	192

RESULT	12
AAW36048	
ID	AAW36048 standard; Protein; 168 AA

AC	AAW36048;
XX	
DT	22-APR-1998 (first entry)

Mouse bcl-2 protein

KM Bcl-2; apoptosis; bcl-2; cell survival; treatment; therapy; cancer
KM diagnosis; degenerative disease.

Mus sp.

PN W09735971-A1

PD 02-OCT-1997

27-MAR-1997; 9/WO-AU000199

PR 27-MAR-1996; 96AU-0008965

PA (AMRA-) AMRAD OPERATIONS PII LID
XX

PL Addalls JM, Coley S, Gibson LM, Nottingham SF
 VV

DR WPL; 1997-409033/40
DR N-PSDB: AAT96578

AA
DT
Nucleic acid enc

PT or inhibit cell survival, e.g. for treatment of cancer and
 PT degenerative diseases
 vv

PS CLAIM 5, Page 20 of 21, Copper, English
XY

This sequence represents a novel protein, bcl-w, encoded by the mouse bcl-2 gene family. This gene promotes cell survival, so its modulation is useful in treatment of cancer or auto-immune diseases, degenerative diseases (e.g. stroke, Alzheimer's disease, myocardial infarct, muscular degeneration, hypoxia, ischemia, human immunodeficiency virus infection or in cell transplants. Up-regulation of the gene can also be used to modify cell lines cultured *in vivo*, e.g. to develop new lines to facilitate isolation of hybridomas and to increase survival of primary explants during genetic modification. It can be used to produce recombinant Bcl-w for therapy, diagnosis, antibody production or screening of potential modulators.

SQ Sequence 168 AA

Query Match	87.1%;	Score 879;	DB 18;	Length 168;
-------------	--------	------------	--------	-------------

1 MATPASTPTRALVADFVGYRLRQKGVCAGPGECPADPLHQMRAAGDEETFRRT 60

modifying fusion protein comprising Bcl-X_L sequence fused via a short

linker to aliphathic toxin receptor binding domain (DBR). The functional apoptosis-modifying fusion protein is capable of binding a target cell and integrating into or crossing a cellular membrane of the target cell, comprising at least two domains, one of which targets the fusion protein to the target cell and another of which modifies an apoptotic response of the target cell. The fusion protein is useful for modifying (inhibiting

CC on enhancing apoptosis in a target cell, such as neuron, lymphocyte,
CC cancer, neoplasm, macrophage, epithelial, stem, tumour or hyper-
CC proliferative cell or an adipocyte. It is also useful for reducing
CC apoptosis in a subject after transient ischaemic neuronal injury,
CC especially spinal cord injury. The fusion protein may be used to treat
CC various diseases and injury conditions through inhibition or enhancement
CC of apoptotic cellular response, including neurodegenerative disorders
CC such as Alzheimer's disease, Huntington's disease, spinal muscular
CC atrophy, stroke episodes and unregulated cell growth as in tumours and
CC various cancers. The apoptosis-modifying fusion protein can be delivered
CC effectively throughout the body and targeted to selective tissue and
CC cells.

SQ Sequence 411 AA;

Query Match	42.6%;	Score 429.5;	DB 22;	Length 411;
Best Local Similarity	39.5%;	Pred. No. 2.1e-38;		
Matches 92;	Conservative 27;	Mismatches 63;	Indels 51;	Gaps 4

```
OY      11 RALVDFEFGYRLRPGKY-----VCAGP----GEEPPA 39
          ||| | : | : ||||
Db      26 relvdfifslsqkygyswsgfsdveentteaapgesetemeptsaingnpswhladsapav 85
                                         | : | : |
OY      40 D-----PLQAMRAAGDEFEETRFRRTESDLAAOLHVTTPGSAQQRRFQ 81
          :   : ||| | |||| : | : ||| | : ||| : | : |
Db      86 ngatahsssladarevlpmaaavkqglrreaegdefelrryrafatlsqhltiprtayagsfeq 145
                                         | : | : |
OY      82 VSDLEFGCGPMWGRVLVAFFVGALCAESVKKMEKPELVGYQODMVMAYLETRLADWIHSS 141
          ||| : ||| | : ||| | ||| ||| : ||| : ||| : ||| :
Db      146 vnnelftfgvnmgrvalafsfisgalcvesvdckemqgvlysrilaamacylnhdhlepwidgen 205
          ||| : ||| : ||| : ||| : ||| : ||| : ||| : ||| :
OY      142 GSMAEFTLLYGSGALEERRLRE--GNMSARVTLTGVALCALVTWGAPFPS 192
          ||| | : | : | : | : | : | : | : | : | : | : |
Db      206 gswdfvelvynmaaaesrkqgefmrflgmtevagrvllgsfstskayaa 258
```

RESULT 15

ID AAB73303 standard; Protein; 233 AA

AC AAB73303

DT 22-MAY-2001 (first entry)

Rat wild-type Bcl-XL protein.

Rat Bcl-XL; apoptosis inhibitor; programmed cell death inhibitor.

KW tissue transplant preservative.

OS *Rattus norvegicus*.

PN WO200112807-A1

PD 22-FEB-2001.

PF 17-AUG-2000; 2000WO-JP05502.

PR 17-AUG-1999; 99JP-0230642.
xy

PA (NISC-) JAPAN SCI & TECHNOLOGY CORP
XX

PI Ohta S, Asoh S;
xy

DR WPI; 2001-211219/21
DR N-PSDB: AAET5960

XX	Modified cDNA of rat
XX	
PT	

PT e.g. apoptosis, permeability to

PT death - XX

PS Claim 6; Page 45-46; 56pp; Japanese.
 xv

CC The invention relates to a mutant rat Bcl-x protein and the cDNA
CC encoding it. The mutant rat Bcl-x protein (Bcl-xFNK) has the
CC substitutions Y22F, Q26N, and R165K relative to the wild-type Bcl-xL
CC protein. The invention also encompasses recombinant vectors and host
CC cells comprising the modified nucleic acid sequence. The mutant Bcl-x
CC protein is able to permeate the cell membrane, thus enhancing its
CC ability to be taken up into a cell and to act as an inhibitor of
CC apoptosis (programmed cell death). Bcl-xFNK and nucleic acids encoding
CC it are useful in remedies for diseases associated with cell death and
CC in additives for maintaining the stability of transplanted cells and
CC organs. The present sequence represents wild-type rat Bcl-xL.

SQ	Sequence	233 AA.
----	----------	---------

Query Match	42.2%;	Score 425.5;	DB 22;	Length 233;
Best Local Similarity	40.9%;	Pred. No. 2.7e-38;		
Matches 92;	Conservative 23;	Mismatches 57;	Indels 53;	Gaps 4.

QY 11 RALVADPEVGYRLRPGKY-----V 28
 Db 6 relvwdflsyrksdqkqysqsfdsdeenrtlaapeeteperetspaingnpswliadspav 65
 QY 29 CGAGPEEGEPAD-----PLHQAMRAAGDEFFTRFRFFSDIAAOLHTPGSAQGRFT 80
 Db 66 ngalcgshssldarevlpmaavkqglreagaqefelryratsfsltsqthltprylaysfe 120
 QY 81 QVSDLEFQGGCPKMGKLVAFVPGALCAESYKKEEPLVGYQDMMVAYLETRLADWTHS 140
 Db 125 qvwnelftdqymwgrlvaflfsgalclvescdkemqvltvsiaasmalylnhblepwltge 180
 QY 141 SGGMAEFTALYGDDGLLEARRLRE--GNMVASRVLTCAVALGL 183
 Db 165 nggwldtlvdylnmaaaesirkqgetfnrfltgmtvgavvllgsl 229

```
Search completed: June 10, 2002, 10:25:46
Job time: 161 sec
```


GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 10, 2002, 10:26:22 ; Search time 28.15 Seconds
(without alignments)
658.801 Million cell updates/sec

Title: US-09-155-327E-9

Perfect score: 1009

Sequence: 1 MATPASTPDRFALVADFEVGY.....LTGVALGALVTFGAFFASK 193

Scoring table: BIOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283138 seqs, 96089334 residues
Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :
1: p1r1:*
2: p1r2:*
3: p1r3:*
4: p1r4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	425.5	42.2	233	2	bcl-x long - mouse
2	424.5	42.1	233	2	apoptosis regulato
3	421.5	41.8	233	2	Bcl-x protein - ra
4	420.5	41.7	233	2	transforming prote
5	411	40.7	232	2	transforming prote
6	408.5	40.5	239	1	transforming prote
7	408	40.4	236	2	Bcl-2 - rat (fragm
8	403	39.9	236	2	gene bcl-2 protein
9	402	39.8	236	1	transforming prote
10	401.5	39.8	233	2	Bcl-x-long - rat
11	399	39.5	236	2	B-cell lymphoma 2
12	395	37.2	190	2	apoptosis regulato
13	374.5	37.1	214	2	bcl-x transmembran
14	371.5	36.8	227	2	apoptosis regulato
15	353	35.0	216	2	transforming prote
16	345.5	34.2	199	1	transforming prote
17	342	33.9	205	1	transforming prote
18	277.5	27.5	154	2	gene bcl-2 protein
19	179	17.7	170	2	bcl-x short - mouse
20	174	17.2	211	2	Bak protein - huma
21	171	16.9	176	2	gene bcl-x-short pr
22	169	16.7	211	2	cdh-2 protein - hu
23	158.5	15.7	192	2	bcl-2-associated p
24	154	15.3	192	2	bcl-2-associated p
25	154	15.3	261	2	apoptosis suppress
26	154	15.3	280	2	apoptosis suppress
27	150.5	14.9	133	2	bcl-2-associated p
28	147.5	14.6	179	2	Bax-delta protein
29	147.5	14.6	218	2	bcl-2-associated p

30	144	14.3	177	2	S54778	NR-13 protein - qu
31	141	14.0	255	2	JC7567	Mcl-1a protein - z
32	138.5	13.7	143	2	I38921	bcl-2-associated p
33	119	11.8	175	2	I39055	Bcl-2 related - hu
34	116	11.5	350	2	A47476	Bcl2 homolog MCL1
35	105	10.4	172	2	I49449	hemopoietic-specif
36	88	8.7	185	2	B83217	hypothetical prote
37	86.5	8.6	301	2	T36534	probable lipase/es
38	86.5	8.6	343	1	GNMWKV	genome polyprotein
39	86	8.5	270	2	AI2598	dihydrodipicolinat
40	86	8.5	279	2	B97381	glutamate--ammonia
41	83.5	8.3	358	1	AJLCOB	alanyl--tRNA synth
42	83.5	8.3	872	2	H95160	alanine--tRNA Lys
43	83.5	8.2	3430	1	GNMWVW	genome polyprotein
44	82.5	8.2	886	2	A32758	beta-amyloid-like
45	81.5	8.1				

ALIGNMENTS

RESULT 1

I49056
bcl-x long - mouse
C:Species: Mus musculus (house mouse)
C:Date: 02-Jul-1996 #sequence-revision 02-Jul-1996 #text-change 16-Jul-1999
C:Accession: I49056; S52866
R:Fang, W.; Rivard, J.J.; Mueller, D.L.; Behrens, T.W.
J. Immunol. 153, 4388-4398, 1994
A:Title: Cloning and molecular characterization of mouse bcl-x in B and T lymphocytes
A:Accession: I49055; M01D:95052604
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-233 <RES>
A:Cross-references: EMBL:U0101; NID:9506647; PIDN:AA82173.1; PID:9506648
R:Kamesaki, H.; Michaud, G.Y.; Takatsu, K.; Okuma, M.
submitted to the EMBL Data Library, November 1994
A:Description: IL-5 inhibits anti-IgM-induced apoptosis in an immature B cell line th
A:Reference number: S52866
A:Accession: S52866
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-233 <KAM>
A:Cross-references: EMBL:X83574; NID:9695622; PIDN:CAA58557.1; PID:9695623
C:Superfamily: bcl transforming protein

Query Match 42.2%; Score 425.5; DB 2; Length 233;
Best Local Similarity 40.9%; Pred. No. 4.3e-32;
Matches 92; Conservative 23; Mismatches 57; Indels 53; Gaps 4;

OY	11	RALVADFEVGYRLROKGY-----	-----V 28
DB	6	RELVDLSTYKLSQKGYWSQFSDVEENKTRPARETERPTSAINGNPWMHLADSPAV	65
OY	29	CGAGRGESPAAD-----PLHQAMRAAGDEPFRFRFRFSDLAOLHTPGSAQGRFT	80
DB	66	NGA-TGHSSSDAREVIMAAVAKOALREAGDEFEIRYRRASDILTSOLHTPTAYOSFE	124
OY	81	QVSDLEFGCGRNWGLVAFVFGAALCAESYNKMEPELVGYOVQVMVAYLETRADMIHS	140
DB	125	QVNELEFDFDGVNMGRIYAFESFGALCVESVDKEMQVLSIASMMATYLLNDHLEPWIOE	184
OY	141	SGWMAEFTALYGDGALAEARLRLE--GNMAVSRTVLGVALGAL	183
DB	185	NGGNMTFVDYLGNNAAASRKQGERFNRMFLTGMTVAGVVLGSL	229

RESULT 2
B47537
apoptosis regulator bcl-xl - human
N:Alternate names: bcl-2-related protein

Biochem. Biophys. Res. Commun. 275, 899-903, 2000

A:Title: Cloning and functional analysis of cDNA encoding the hamster Bcl-2 protein.

A:Reference number: JG7383

A:Contents: Ovary

A:Accession: JG7383

A:Molecule type: mRNA

A:Residues: 1-236 <TOM>

A:Cross-references: GB:AJ271720

A:Comment: This protein has anti-apoptotic function, and supports cell survival.

C:Genetics:

A:Gene: bcl-2

C:Superfamily: bcl transforming protein

C:Keywords: B-cell lymphoma; ovary

Query Match 39.5%; Score 399; DB 2; Length 236;

Best Local Similarity 34.9%; Pred. No. 1.3e-29;

Matches 81; Conservative 35; Mismatches 64; Indels 52; Gaps 3;

----- 27

9 DFLAVADFGYRLRQGY-----

10 DNEIYWKIYHKLQSGYEMDVGDVADAPLGAAPTPGIFSPESNPTPAVHRDMAART 69

28 -----VCGAGPGEPPADPLHOAMRAAGDEFFRRFRFTSDLAQLHVTGSAOQRTQ 81

70 SPLRPVATGTGPTLSPVPVYVHLTLRRAGDDEFRRYRDPFAESSQLHPTTAGRRAT 129

82 VSDELFGCGNMGRLVAFVFGALCAESYKMEPLVQVDWMVAYLETRLDWTHSS 141

130 VVEELFDGVMGRIVAFVFEFGVMCEVSNREMSPLVNIALMMEYLNRLHHTWIDON 189

142 GMAEFALYCDGALIEARRLREGNMASVTRVITGVALGALYVAFASK 193

190 GGMVAFELVY-----PSVRPLDFSMWLSLTKTLISLAL-VGACITLDTYLGHK 236

RESULT 12

A47537

apoptosis regulator bcl-x - chicken

C:Species: Gallus gallus (chicken)

C:Date: 03-May-1994 #sequence_revision 03-May-1994 #text_change 16-Jul-1999

C:Accession: A47537

R:Boise, L.H.; Gonzalez-Garcia, M.; Postema, C.E.; Ding, L.; Landsten, T.; Turka, L.A.;

Cell 74, 597-608, 1993

A:Title: bcl-x, a bcl-2-related gene that functions as a dominant regulator of apoptotic

A:Reference number: A47537; MUID:93364977

A:Accession: A47537

A:Status: preliminary

A:Molecule type: DNA

A:Residues: 1-190 <BOI>

A:Cross-references: GB:223110; GB:U20120; NID:9510898; PIDN:CAA80657.1; PID:9510899

C:Superfamily: bcl transforming protein

Query Match 37.2%; Score 375; DB 2; Length 190;

Best Local Similarity 43.2%; Pred. No. 1.7e-27;

Matches 80; Conservative 15; Mismatches 44; Indels 46; Gaps 3;

----- 37

11 RALVADFGYRLRQGY-----VCGAGPGECP-----

6 RELVIDFVSKLQSGHCKMSELEEDENRTDAEAEMDSVINGSPSHPRAGHVNAT 65

38 -----AADPLHOAMRAAGDEFFRRFRFTSDLAQLHVTGSAOQRTQVSD 85

66 VHSSELEHIVASDVRQALRAGDEFFLRRAFSDLTSLHTTPGTAQSEFQVYNE 125

86 LFGGPNMGRIVAFVFGALCAESYKMEPLVQVDWMVAYLETRLDWTHSSGMA 145

126 LFHGVNMGRIVAFVFGALCAESYKMEPLVQVDWMVAYLETRLDWTHSSGMA 185

146 EFTAL 150

186 R-TAL 189

RESULT 13

I49057

bcl-x transmembrane deleted - mouse

C:Species: Mus musculus (house mouse)

C:Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 16-Jul-1999

C:Accession: I49057

R:Fang, W.; Rivaud, J.J.; Mueller, D.L.; Behrens, T.W.

J. Immunol. 153, 4388-4398, 1994

A:Title: Cloning and molecular characterization of mouse bcl-x in B and T lymphocytes

A:Reference number: I49057; MUID:95052604

A:Accession: I49057

A:Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 1-214 <RES>

A:Cross-references: EMBL:U010102; NID:9506649; PIDN:AAA82174.1; PID:9506650

C:Genetics:

A:Gene: bcl-x-long

C:Superfamily: bcl transforming protein

Query Match 37.1%; Score 374.5; DB 2; Length 214;

Best Local Similarity 42.2%; Pred. No. 2.1e-27;

Matches 79; Conservative 17; Mismatches 40; Indels 51; Gaps 3;

----- 28

11 RALVADFGYRLRQGY-----

6 RELVDFLSYKLSQKYSMSQSDVEENRTFAETEARETPPSAINGNSHLDSPAV 65

29 CGAGPGEPPAD-----PLHOAMRAAGDEFFRRFRFTSDLAQLHVTGSAOQRT 80

66 NGA-TGHSSTSLDAEVIIPMAVRAQALREAGDEFLKRRAFSLTISQHLITGTAYQSE 124

81 QVSELEFGCGNMGRLVAFVFGALCAESYKMEPLVQVDWMVAYLETRLDWTHS 140

125 QVVELEFRDQVMGRIVAFVFGALCAESYKMEPLVQVDWMVAYLETRLDWTHS 184

141 SCGMAEF 147

185 NGMDTF 191

RESULT 14

JE0203

apoptosis regulator bcl-x isoform - human

N:Alternate names: h-bcl-xbeta

C:Species: Homo sapiens (man)

C:Date: 21-Aug-1998 #sequence_revision 21-Aug-1998 #text_change 16-Jul-1999

C:Accession: JE0203

R:Ban, J.; Eckhart, L.; Weninger, W.; Mildner, M.; Tschachler, E.

Biochem. Biophys. Res. Commun. 248, 147-152, 1998

A:Title: Identification of a human cDNA encoding a novel bcl-x isoform.

A:Reference number: JE0203; MUID:96340865

A:Accession: JE0203

A:Molecule type: mRNA

A:Residues: 1-227 <BAN>

A:Cross-references: GB:U2398; NID:91622940; PIDN:AAJ17354.1; PID:91622941

C:Genetics:

A:Gene: bcl-x

A:Map position: 20

C:Superfamily: bcl transforming protein

Query Match 36.8%; Score 371.5; DB 2; Length 227;

Best Local Similarity 40.3%; Pred. No. 4.3e-27;

Matches 81; Conservative 19; Mismatches 50; Indels 51; Gaps 3;

----- 28

11 RALVADFGYRLRQGY-----

6 RELVDFLSYKLSQKYSMSQSDVEENRTFAETEARETPPSAINGNSHLDSPAV 65

29 CGAGPGEPPAD-----PLHOAMRAAGDEFFRRFRFTSDLAQLHVTGSAOQRT 80

```

Db      66  NGA-TGSSSLDAREVTPMAAVKQALREAGDEFEELRYRAFSDLTSLHTPGTAYQSFE 124
QY      81  QVSDDELFOGQPMNGRLVAFFVFGAALCAESYKMEPELVGOVQDMWVAYLETRLADWTHS 140
Db      125  QVYNELFRDGVNMGRIVAFESFGALCVESYKEMQVLVSRIAAMWATYLDNDHLEPWIOE 184
QY      141  SGGWAEFTALXGDGALAEARR 161
Db      185  NGGWRTKPLVCPFSLASQOR 205

```

RESULT 15

B37332

transforming protein (bcl-2-beta) - chicken

C:Species: Gallus gallus (chicken)

C:Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 24-Apr-1998

C:Accession: B37332; S35452

R:Eguchi, Y.; Ewert, D.L.; Tsujimoto, Y.

Nucleic Acids Res. 20, 4187-4192, 1992

A:Title: Isolation and characterization of the chicken bcl-2 gene: expression in a variety

A:Reference number: A37332; MUID:923/5724

A:Accession: B37332

A:Status: nucleic acid sequence not shown

A:Molecule type: DNA

A:Residues: 1-216 <EGU>

A:Cross-references: EMBL:DJ1381; EMBL:DJ1382

C:Superfamily: bcl transforming protein

Query Match

Best local similarity 35.0%; Score 353; DB 2; Length 216;

Matches 70; Conservative 22; Mismatches 49; Indels 44; Gaps 2;

```

QY      9  DTRALVADFCVGRRLRQGYCGAG-----PGEGRADP----- 41
Db      10  DNRKIVLKIHYKLISRGYDWAAGEDEPPVPAPAPAPAAVAAGAASSHHRRPPGSA 69
QY      42  -----LHOAMRAAGDEFETFRFTFSDLAQLHYTPGSAOQRTQVSD 84
Db      70  AASEVPPAEGLRPAPPGVHLALRQAGDEFRRYQRFDAQMSGOLHTPTAHGREVAAYE 129
QY      85  ELFGGPNMGRLVAFFVFGAALCAESYKMEPELVGOVQDMWVAYLETRLADWTHS 144
Db      130  ELFRDGVNMGRIVAFESFGALCVESYKEMQVLVSRIAAMWATYLDNDHLEPWIOE 184
QY      145  AEFTA 149
Db      190  VRACA 194

```

Search completed: June 10, 2002, 10:26:22
 Job time: 170 sec

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 10, 2002, 10:32:13 ; Search time 15.84 Seconds
(without alignments) 471.772 Million cell updates/sec

Title: us-09-155-327e-9

Perfect score: 1009
Sequence: 1 MATPASPPTPRALVADFGV.....ITGVALGALVTVGAFFASK 193

Scoring table: BIOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	1006	99.7	193	1 BCLW_MOUSE	P70345 mus musculus
2	997	98.8	193	1 BCLW_MOUSE	O92843 homo sapien
3	647.5	62.2	228	1 ARL_XENLA	O91827 xenopus lae
4	429.5	42.6	229	1 BCLX_CHICK	O07816 gallus gall
5	428.5	42.5	233	1 BCLX_PIG	O77377 sus scrofa
6	425.5	42.2	233	1 BCLX_MOUSE	O64373 mus musculus
7	425.5	42.2	233	1 BCLX_MOUSE	P55563 rattus norv
8	424.5	42.1	233	1 BCLX_MOUSE	O07817 homo sapien
9	420.5	41.7	233	1 BCL2_CHICK	O00709 gallus gall
10	412.5	40.9	229	1 BCL2_BOVIN	O02718 bos taurus
11	410	40.6	236	1 BCL2_MOUSE	P49550 rattus norv
12	409	40.5	236	1 BCL2_MOUSE	P10417 mus musculus
13	408.5	40.5	236	1 BCL2_MOUSE	P10415 mus musculus
14	389	36.5	204	1 BCL2_CHICK	O91378 cricetus
15	366	36.3	204	1 ARL_XENLA	O91828 xenopus lae
16	175.5	17.4	208	1 BAK_MOUSE	O08734 mus musculus
17	174	17.2	211	1 BAK_MOUSE	O16611 homo sapien
18	169	16.7	211	1 BAK_MOUSE	O13014 homo sapien
19	156.5	15.5	192	1 BAXA_MOUSE	O07813 mus musculus
20	155.5	15.4	192	1 BAXA_MOUSE	O65690 rattus norv
21	154	15.3	192	1 BAXA_MOUSE	O07812 homo sapien
22	154	15.3	280	1 CED9_CAEL	P41958 caenorhadi
23	148	14.7	192	1 BAXA_BOVIN	O02703 bos taurus
24	147.5	14.6	218	1 BAXB_MOUSE	O07814 homo sapien
25	144	14.3	177	1 NR13_COTJA	O90343 coturnix co
26	140.5	13.9	271	1 CED9_CAEL	P41957 caenorhadi
27	138.5	13.7	143	1 BAXD_MOUSE	P55269 homo sapien
28	119	11.8	175	1 BFL1_MOUSE	O16548 homo sapien
29	116	11.5	350	1 MCL1_MOUSE	O07820 homo sapien
30	105	10.4	172	1 BFL1_MOUSE	O07440 mus musculus
31	99.5	9.9	179	1 EAR_ASFM2	O07819 african swi
32	98.5	9.8	179	1 EAR_ASFM7	P42485 african swi
33	98.5	9.8	179	1 EAR_ASFM4	O07818 african swi

34	92.5	9.2	658	1 SQHC_BRAJA	P54924 bradyrhizob
35	86.5	8.6	3433	1 POLG_KUNJM	P14335 k genome po
36	84.5	8.4	358	1 GLNA_LACSA	P23712 lactuca sat
37	82.5	8.2	3430	1 POLG_MNV	P06933 y genome po
38	81.5	8.1	886	1 A4_DROME	P14599 drosophila
39	81	8.0	396	1 PORL_PYRFU	O51804 pyrococcus
40	80.5	7.8	236	1 YJ94_ARCFU	O28285 archaeoglob
41	79	7.8	454	1 YB48_MYCTU	O06548 mycobacteri
42	79	7.8	454	1 YJ45_MYCTU	P95269 mycobacteri
43	77.5	7.7	1440	1 POLG_JAEVJ	P14403 j genome po
44	77.5	7.7	3432	1 POLG_JAEVJ	P32886 j genome po
45	77	7.6	162	1 PHCA_STNPP	P00308 synechococc

ALIGNMENTS

RESULT 1
BCLW_MOUSE STANDARD; PRT; 193 AA.
AC P70345;
DT 01-NOV-1997 (Rel. 35, Created)
DT 01-NOV-1997 (Rel. 35, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE Apoptosis regulator Bcl-W.
GN BCL2L2 OR BCLW.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_Taxid=10090;
[1]
RP SEQUENCE FROM N.A.
RX MEDLINE=96358615; PubMed=8761287;
RA Gibson L., Holmgren S.P., Huang D.C., Bernard O., Copeland N.G.,
RA Jenkins N.A., Sutherland G.R., Baker E., Adams J.M., Cory S.,
RT "Bcl-W, a novel member of the bcl-2 family, promotes cell survival.",
RL Oncogene 13:665-675(1996).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=96160183; PubMed=9500547;
RA Ross A.J., Waymire K.G., Moss J.E., Parlow A.F., Skinner M.K.,
RA Russell L.D., Macgregor G.R.;
RT "testicular degeneration in Bclw-deficient mice.",
RL Nat. Genet. 18:251-256(1998).
CC -1- FUNCTION: PROMOTES CELL SURVIVAL.
CC -1- SUBCELLULAR LOCATION: Cytoplasmic.
CC -1- TISSUE SPECIFICITY: EXPRESSED IN ALMOST ALL MYELOID CELL LINES AND
IN A WIDE RANGE OF TISSUES, WITH HIGHEST LEVELS IN BRAIN, COLON,
AND SALIVARY GLAND.
CC -1- DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC
FUNCTION.
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
CC
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CC
CC EMBL: U59746; AAB09056.1; -;
CC EMBL: AF030769; AAB86430.1; -;
CC HSSP: Q07817; IMAZ.
CC MGD: MGI:108052; Bcl212.
CC InterPro: IPR002475; BCL2_family.
CC InterPro: IPR003093; BH4.
CC InterPro: IPR000712; Bcl-2.
CC Pfam: PF00452; Bcl-2; 1.
DR

DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 DR Apoptosis.
 FT DOMAIN 9 29 BH4.
 FT DOMAIN 85 104 BH1.
 FT DOMAIN 136 151 BH2.
 SQ SEQUENCE 193 AA; 20790 MW; 36CA185F5945D7B4 CRC64;

Query Match 99.7%; Score 1006; DB 1; Length 193;
 Best Local Similarity 99.5%; Pred. No. 1.8e-82;
 Matches 192; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MATPASPTPTRALVADVFVGRRLRQKGYCGAGPGGPAADPLHQMRAAGDEFETRRRT 60
 DB 1 MATPASPTPTRALVADVFVGRRLRQKGYCGAGPGGPAADPLHQMRAAGDEFETRRRT 60
 QY 61 FSDLAQLHVTPTGSAQOQRTQVSDLEFQGGPNMGRVAFVFGALCAESYNKEMEPLVG 120
 DB 61 FSDLAQLHVTPTGSAQOQRTQVSDLEFQGGPNMGRVAFVFGALCAESYNKEMEPLVG 120
 QY 121 QVODMVAAYLETRLDWTHSSGMAEFTALYGDGALFEARRLRREGNMAVSRTVLTGAVAL 180
 DB 121 QVODMVAAYLETRLDWTHSSGMAEFTALYGDGALFEARRLRREGNMAVSRTVLTGAVAL 180
 QY 181 GALVTGAFPAASK 193
 DB 181 GALVTGAFPAASK 193

RESULT 2
 BCLM_HUMAN STANDARD; PRT; 193 AA.
 ID BCLM_HUMAN
 AC 092843;
 DT 01-NOV-1997 (Rel. 35, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-w.
 GN BCL2L2 OR BCLW OR KIA0271.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
 OX NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA MEDLINE=96358615; PubMed=8761287;
 RA Gibson L., Holmgren S.P., Huang D.C., Bernard O., Copeland N.G.,
 RA Jenkins N.A., Sutherland G.R., Baker E., Adams J.M., Cory S.;
 RT "Bcl-w, a novel member of the bcl-2 family, promotes cell survival.";
 RT Oncogene 13:665-675(1996).
 RL [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Brain;
 RX MEDLINE=97191544; PubMed=9039502;
 RA Nagase T., Seki N., Ishikawa K.-I., Ohira M., Kawarabayashi Y.,
 RA Ohara O., Tanaka A., Kotani H., Miyajima N., Nomura N.;
 RT "Prediction of the coding sequences of unidentified human genes. VI.
 RT The coding sequences of 80 new genes (KIA0201-KIA0280) deduced by
 RT analysis of cDNA clones from cell line KG-1 and fraction.";
 RL DNA Res. 3:321-329(1996).
 CC -1- FUNCTION: PROMOTES CELL SURVIVAL.
 CC -1- SUBCELLULAR LOCATION: Cytoplasmic.
 CC -1- TISSUE SPECIFICITY: EXPRESSED IN ALMOST ALL MYELOID CELL LINES AND
 CC IN A WIDE RANGE OF TISSUES, WITH HIGHEST LEVELS IN BRAIN, COLON,
 CC AND SALIVARY GLAND.
 CC -1- DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC
 CC FUNCTION.

CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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DR EMBL: U59747; AAB09055.1; -;
 DR EMBL: D87461; BAA19666.1; -;
 DR HSSP: 007817; 1MAZ.
 DR MIM: 601931; -;
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR00712; BCL_2.
 DR Pfam: PF00452; BCL-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 KW Apoptosis.
 FT DOMAIN 9 29 BH4.
 FT DOMAIN 85 104 BH1.
 FT DOMAIN 136 151 BH2.
 SQ SEQUENCE 193 AA; 20774 MW; 3792243A50281761 CRC64;

Query Match 98.8%; Score 997; DB 1; Length 193;
 Best Local Similarity 98.4%; Pred. No. 1.1e-81;
 Matches 190; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 MATPASPTPTRALVADVFVGRRLRQKGYCGAGPGGPAADPLHQMRAAGDEFETRRRT 60
 DB 1 MATPASPTPTRALVADVFVGRRLRQKGYCGAGPGGPAADPLHQMRAAGDEFETRRRT 60
 QY 61 FSDLAQLHVTPTGSAQOQRTQVSDLEFQGGPNMGRVAFVFGALCAESYNKEMEPLVG 120
 DB 61 FSDLAQLHVTPTGSAQOQRTQVSDLEFQGGPNMGRVAFVFGALCAESYNKEMEPLVG 120
 QY 121 QVODMVAAYLETRLDWTHSSGMAEFTALYGDGALFEARRLRREGNMAVSRTVLTGAVAL 180
 DB 121 QVODMVAAYLETRLDWTHSSGMAEFTALYGDGALFEARRLRREGNMAVSRTVLTGAVAL 180
 QY 181 GALVTGAFPAASK 193
 DB 181 GALVTGAFPAASK 193

RESULT 3
 ARL_XENLA STANDARD; PRT; 228 AA.
 ID ARL_XENLA
 AC 091827;
 DT 01-NOV-1997 (Rel. 35, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 01-NOV-1997 (Rel. 35, Last annotation update)
 DE Apoptosis regulator R1 (XRI) (Fragment).
 OS Xenopus laevis (African clawed frog).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae;
 OC Xenopodinae; Xenopus.
 OX NCBI_TaxID=8355;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Head;

RX MEDLINE-95331613; PubMed=7607538;
 RA Cruz-Reyes J., Tata J.R.;
 RT "Cloning, characterization and expression of two Xenopus bcl-2-like
 RT cell survival genes.";
 RT Gene 158:171-179(1995).
 CC -1- FUNCTION: COULD BE THE HOMOLOG OF MAMMALIAN BCL-W.
 CC -1- SUBCELLULAR LOCATION: Membrane-bound (Potential).
 CC -1- DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN THE
 CC BRAIN OF MID-METAMORPHOSIS TO POST-METAMORPHOSIS TADPOLES AND
 CC ADULTS, WHERE AN INCREASE OF SEVERAL FOLD HAS BEEN OBSERVED.
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
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 CC -----
 DR EMBL: X82462; CA57845.1; -
 DR HSSP: Q07817; IMA2.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; BCL_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR Apoptosis: Transmembrane.
 KW NON_TRAN 1 BH1.
 FT DOMAIN 120 139 BH1.
 FT DOMAIN 171 186 BH2.
 FT TRANSMEM 207 227 POTENTIAL.
 FT SEQUENCE 228 AA; 25068 MW; C499D449A585F8A9 CRC64;
 SQ
 Query Match 64.2%; Score 647.5; DB 1; Length 228;
 Best Local Similarity 67.9%; Pred. No. 1.4e-50;
 Matches 125; Conservative 21; Mismatches 35; Indels 3; Gaps 1;
 OY 10 TRATVADVGYRLRQKGYVCGAGGEGPAPADPLHQAMRANGDEPFRFRFESDLAQH 69
 DB 48 SRAIVEDLVRYKLCQRSIV--PEPSGAASCALHSAMRAAGDEFEERFQAFSEISTQIH 104
 OY 70 VPPGSAQGRFTQVSDLEFQGGPNNGRIVAFVFGAALCAESVKNKEMPLVGOVQDMWVAY 129
 DB 105 VPPGTAAYRAFEVAGSLFQGGVNMGRIVAFVFGAALCAESVKNKEMPLPRIDMWVY 164
 OY 130 LETRLADWTHSSGVAEFTALYDGALFEARLRREGNMAVRYTVLGAVALGALVYVGF 189
 DB 165 LETRLADWTHSSGVAEFTALYDGALFEARLRREGNMAVRYTVLGAVALGALVYVGF 224
 OY 190 FASK 193
 DB 225 FASK 228
 RESULT 4
 BCLX_CHICK STANDARD; PRT; 229 AA.
 ID BCLX_CHICK
 AC Q07816; Q98908;
 DT 01-FEB-1995 (Rel. 31, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-X.
 GN BCL2L1 OR BCLX OR BCL-X.
 OS Gallus gallus (Chicken).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Archosauromia; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
 OC Gallus.
 OC NCBI_TaxID=9031;
 RN [1]
 RP SEQUENCE FROM N.A. (SHORT FORM).
 RX MEDLINE-93364977; PubMed=8358789;
 RA Boise L.H., Gonzalez-Garcia M., Postema C.E., Ding L., Lindsten T.,
 RA Turka L.A., Mao X., Nunez G., Thompson C.B.;
 RT "bcl-x, a bcl-2-related gene that functions as a dominant regulator
 RT of apoptotic cell death.";
 RL Cell 74:597-608(1993).
 RN [2]
 RP SEQUENCE FROM N.A. (LONG FORM).
 RC STRAIN-HUBBARD WHITE MOUNTAIN; TISSUE-Testis;
 RX MEDLINE-97264485; PubMed=9110311;
 RA Vilagrasa X., Mezquita C., Mezquita J.;
 RT "Differential expression of bcl-2 and bcl-x during chicken
 RT spermatogenesis.";
 RL Mol. Reprod. Dev. 47:26-29(1997).
 CC -1- FUNCTION: DOMINANT REGULATOR OF APOPTOTIC CELL DEATH. THE LONG
 CC FORM DISPLAYS CELL DEATH REPRESSOR ACTIVITY, WHEREAS THE SHORT
 CC ISOFORM PROMOTES APOPTOSIS (BY SIMILARITY).
 CC -1- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR
 CC ENVELOPE (BY SIMILARITY).
 CC -1- ALTERNATIVE PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A
 CC SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING.
 CC -1- TISSUE SPECIFICITY: HIGHEST EXPRESSION IN ORGANS WITH LYMPHOID
 CC DEVELOPMENT.
 CC -1- DOMAIN: BH4 DOMAIN SEEMS TO BE INVOLVED IN THE ANTI-APOPTOTIC
 CC FUNCTION. INTACT BH1 AND BH2 DOMAINS ARE REQUIRED FOR ANTI-
 CC APOPTOTIC ACTIVITY (BY SIMILARITY).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: Z23110; CA80657.1; -
 DR EMBL: U26645; AAB07677.1; -
 DR PIR: A47537; A47537.
 DR HSSP: P53563; IAF3.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; BCL_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 DR Apoptosis: Transmembrane; Alternative splicing.
 KW DOMAIN 4 BH4.
 FT DOMAIN 82 96 BH3.
 FT DOMAIN 125 144 BH1.
 FT DOMAIN 176 191 BH2.
 FT TRANSMEM 206 223 POTENTIAL.
 FT VARSPIC 185 229
 FT SEQUENCE 229 AA; 25733 MW; A97D3A4D04C0E9DA CRC64;
 SQ

Query Match 42.6%; Score 429.5; DB 1; Length 229;
 Best Local Similarity 41.2%; Pred. No. 3.3e-31;
 Matches 94; Conservative 23; Mismatches 62; Indels 49; Gaps 4;

11 RALVADPFGYRLRQKGY-----VCGAPGEGCP----- 37
 6 RELVDFVSTKLSQNGHSELEEDENTDTAAEAEMDSVNGSPSMHPAGHYVNGAT 65
 38 -----AADPLHOAMRAGDEPFRFRFSPSLAOLHTPPSAOQRTQVSDE 85
 66 VHRSSLEVEHYIRASDVRRALDADGDEFLRRRAFSDLTSOLHTTPTAQSFEQVYNE 125
 86 LROGGNMRRLVAFVFGAALCAESVKNEMEPVGVQVDMVAVYLETRLADMIHSSGWA 145
 126 LFHDGVNMRIRIVAFSFGALCVESVDKEMRVLVGRIVSMWTTTLTDLDPWIDENGWE 185
 146 EFTALYDGLAEARLRGCMNASVRYLTGVALGALVYTGAFPAK 193
 186 RFVDLXGNNAAALRLRGQETENKMLTGTAVAGVLL-LGSLLSRK 229

RESULT 5

BCLX_PIG STANDARD; PRT: 233 AA.
 AC 07737:
 DT 15-JUL-1999 (Rel. 38, Created)
 DT 15-JUL-1999 (Rel. 38, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-x.
 GN BCL2L1 OR BCL2L OR BCLX.
 OS Sus scrofa (Pig).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
 NCBI_TaxID=9623;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Battling B., Hoffmann J., Holtz J., Schulz R., Heusch G., Darmer D.;
 RT "Expression of apoptosis-associated genes in hibernating and stunned
 myocardium of pig";
 RL Submitted (JAN-1998) to the EMBL/GenBank/DBJ databases.
 CC -1- FUNCTION: Potent inhibitor of cell death. Inhibits activation of
 caspases (By similarity). Appears to regulate cell death by
 blocking the voltage-dependent anion channel (VDAC) by binding
 to it and preventing the release of the caspase activator,
 cytochrome c, from the mitochondrial membrane.
 CC -1- SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (By
 similarity). Heterodimerization with BAX does not seem to be
 required for anti-apoptotic activity (By similarity).
 CC -1- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANE AND PERINUCLEAR
 ENVELOPE (By similarity).
 CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity.
 CC The BH1 and BH2 domains are required for both heterodimerization
 CC with other Bcl2 family members and for repression of cell death.
 CC -1- PTM: Proteolytically cleaved by caspases during apoptosis (By
 similarity). The cleaved protein, lacking the BH4 domain, has pro-
 apoptotic activity (By similarity).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.

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 or send an email to license@sib-sib.ch).

EMBL: AJ001203; CAA04597.1; -
 DR HSSP: 007817; IMAZ.

DR InterPro: IPR002475; BCL2 family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR00712; Bcl-2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS0062; BCL2 FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4; 1; 1.
 DR PROSITE: PS0063; BH4_2; 1.
 DR Apoptosis; Mitochondrion; Transmembrane.
 FT DOMAIN 4 24 BH4.
 FT DOMAIN 86 100 BH3.
 FT DOMAIN 129 148 BH1.
 FT DOMAIN 180 195 BH2.
 FT TRANSMEM 210 226 POTENTIAL.
 SQ SEQUENCE 233 AA; 26061 MW; 18B6F0A441912B2 CRC64;

Query Match 42.5%; Score 428.5; DB 1; Length 233;
 Best Local Similarity 41.3%; Pred. No. 4.1e-31;
 Matches 93; Conservative 22; Mismatches 57; Indels 53; Gaps 4;

11 RALVADPFGYRLRQKGY-----V 28
 6 RELVDFVSTKLSQNGHSELEEDENTDTAAEAEMDSVNGSPSMHPAGHYVNGAT 65
 29 CGAGPGEPPAD-----PLHOAMRAGDEPFRFRFSPSLAOLHTPPSAOQRT 80
 66 NGA-TGHSLSDAEIVPMAVKAALAEADGDEFLRRRAFSDLTSOLHTTPTAQSFE 124
 81 QVSELEFQGGNMRRLVAFVFGAALCAESVKNEMEPVGVQVDMVAVYLETRLADMIH 140
 125 QVLELEFRDGVNMRIRIVAFSFGALCVESVDKEMRVLVGRIVSMWTTTLTDLDPW 184
 141 SGWAEFTALYDGLAEARLRGCMNASVRYLTGVALGALVYTGAFPAK 193
 185 NGGWDTFVELXGNNAAALRLRGQETENKMLTGTAVAGVLL-LGSLLSRK 229

RESULT 6

BCLX_MOUSE STANDARD; PRT: 233 AA.
 AC 064373; 060657; 060658; 061338;
 DT 01-NOV-1997 (Rel. 35, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Apoptosis regulator Bcl-x.
 GN BCL2L1 OR BCL2L OR BCLX.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Kamesaki H., Michaud G.Y., Takatsu K., Okuma M.;
 RA STRAIN=2A4B;
 RL Submitted (MAR-1995) to the EMBL/GenBank/DBJ databases.
 RP SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(BETA)).
 RC STRAIN=57BL/6; TISSUE=Brain;
 RX MEDLINE=95331139; PubMed=7607090;
 RA Gonzalez-Garcia M., Perez-Ballester R., Ding L., Duan L., Bolise L.H.,
 RA Thompson C.B., Nunez G.;
 RT "Bcl-XL is the major bcl-x mRNA form expressed during murine
 development and its product localizes to mitochondria";
 RL Development 120:3033-3042(1994).
 RN [3]
 RP SEQUENCE FROM N.A. (ISOFORMS X(L); X(S) AND X(DELTA-TM)).
 RC TISSUE=Pre-B cell;

RX MEDLINE=95052604; PubMed=7963517;
 RA Fang W., Rivard J.J., Mueller D.L., Behrens T.W.;
 RT "Cloning and molecular characterization of mouse bcl-x in B and T
 RL lymphocytes."; J. Immunol. 153:4388-4398(1994).
 RN [4]
 RP SEQUENCE FROM N.A. (ISOFORM X(BETA)).
 RC STRAIN=C57BL/6 X CBA; TISSUE=Thymus;
 RX MEDLINE=98051053; PubMed=9380687;
 RA Yang X.-F., Weber G.F., Cantor H.;
 RT "A novel Bcl-x isoform connected to the T cell receptor regulates
 RL apoptosis in T cells."; Immunity 7:629-639(1997).
 RN [5]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=97289584; PubMed=9144489;
 RA Grillo D.A., Gonzalez-Garcia M., Ekhterae D., Duan L., Inohara N.,
 RT Ohta S., Seidm M.F., Nunez G.;
 RT "Genomic organization, promoter region analysis, and chromosome
 RT localization of the mouse bcl-x gene."; J. Immunol. 158:4750-4757(1997).
 RL J. Immunol. 158:4750-4757(1997).
 CC -1- FUNCTION: Potent inhibitor of cell death. Inhibits activation of
 CC caspases (By similarity). Appears to regulate cell death by
 CC blocking the voltage-dependent anion channel (VDAC) by binding
 CC to it and preventing the release of the caspase activator,
 CC cytochrome c, from the mitochondrial membrane. The Bcl-x(S)
 CC isoform promotes apoptosis.
 CC -1- SUBUNIT: Bcl-x(L) forms heterodimers with BAX, BAK and Bcl-2 (By
 CC similarity). Heterodimerization with BAX does not seem to be
 CC required for anti-apoptotic activity (By similarity).
 CC -1- SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR
 CC ENVELOPE FOR BCL-X(L). CYTOPLASMIC FOR BCL-X(DELTA-TM).
 CC -1- ALTERNATIVE PRODUCTS: 4 ISOFORMS: BCX-X(L) (SHOWN HERE), BCL-X(S),
 CC BCL-X(BETA) AND BCL-X(DELTA-TM); ARE PRODUCED BY ALTERNATIVE
 CC SPLICING.
 CC -1- TISSUE SPECIFICITY: WIDELY EXPRESSED, WITH HIGHEST LEVELS IN THE
 CC BRAIN, THYMUS, BONE MARROW, AND KIDNEY. BCL-X(L) AND BCL-X(DELTA-
 CC TM) EXPRESSION IS ENHANCED IN B AND T LYMPHOCYTES THAT HAVE BEEN
 CC ACTIVATED.
 CC -1- DEVELOPMENTAL STAGE: BCL-X(BETA) IS EXPRESSED IN BOTH EMBRYONAL AND
 CC POSTNATAL TISSUES. WHEREAS BCL-X(L) IS PREDOMINANTLY FOUND IN
 CC POSTNATAL TISSUES.
 CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity.
 CC The BH1 and BH2 domains are required for both heterodimerization
 CC with other Bcl2 family members and for repression of cell death.
 CC -1- PTM: Proteolytically cleaved by caspases during apoptosis (By
 CC similarity). The cleaved protein, lacking the BH4 domain, has pro-
 CC apoptotic activity (By similarity).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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 CC -----
 CC EMBL: X83574; CAAS8557.1; -
 DR EMBL: L35049; AAA51039.1; -
 DR EMBL: L35048; AAA51040.1; -
 DR EMBL: U10102; AAA82174.1; -
 DR EMBL: U10101; AAA82173.1; -
 DR EMBL: U10100; AAA82172.1; -
 DR EMBL: U51279; AAC53460.1; -
 DR EMBL: U78031; AAB96881.1; -
 DR EMBL: U78030; AAB96881.1; JOINED.
 DR HSP: P53563; IAF3
 DR MGD; MGI:88139; BCL2L1.

DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; BCL2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 DR Apoptosis; Mitochondrion; Alternative splicing; Transmembrane.
 KW DOMAIN 4 24
 FT DOMAIN 86 100 BH3.
 FT DOMAIN 129 148 BH1.
 FT DOMAIN 180 195 BH2.
 FT TRANSMEM 210 226 POTENTIAL.
 FT VARSPLIC 126 188 MISSING (IN ISOFORM BCL-X(S)).
 FT VARSPLIC 189 233 DTFVLYGNNAAESRKGGERFNRFLTGMVAGVLLGSL
 FT VARSPLIC 194 233 PSRK -> VRTPLVCPPIACVSLCEHP (IN ISOFORM
 FT BCL-X(BETA)).
 FT VARSPLIC 194 233 LYGNNAAESRKGGERFNRFLTGMVAGVLLGSL
 FT VARSPLIC 194 233 -> GHDCGWCAGLTLLQSEVTRH (IN ISOFORM BCL-
 FT X(DELTA-TM)).
 SQ SEQUENCE 233 AA; 26132 MW; 24D2AC79887E072E CRC64;
 Query Match 42.2%; Score 425.5; DB 1; Length 233;
 Best Local Similarity 40.9%; Pred. No. 7.5e-31;
 Matches 92; Conservative 23; Mismatches 57; Indels 53; Gaps 4;
 QY 11 BALVADFGVRLRQKGY-----V 28
 DB 6 RELVDFELSTKLSQKGYNSQPSDYENRTEAPETEARPPSAINGNPSMHLADSPAV 65
 QY 29 CGAGPEGEPAD-----PLHQARRAAGDEFFTRFRFSDLAQLVTPGSAQGRFT 80
 DB 66 NCA-TGHSSSLDARVYIPMAVKALREAGDEFELRYRRASDLSQLHTPGRAYQSFE 124
 QY 81 QVSDELPGCGPWGRLVAFVFGALCAESVKKMEPLVGOVOMVAVYLETRADLWHS 140
 DB 125 QVNELEFRGVNGVRAVFAVSFGALCVESYKQVLEQVLSMAVYLLDHPLEWIOE 184
 QY 141 SGMAEFTALYGDGALAEARLRE--GNWASVRYLTGAVALGAL 183
 DB 185 NGMDTFVDLYGNNAAESRKGGERFNRFLTGMVAGVLLGSL 229
 RESULT 7
 BCIX_RAT STANDARD: PRT: 233 AA.
 AC P53563; Q62678; P70614; P70613; Q62836; Q64087; Q64128;
 DT 01-OCT-1996 (Rel. 34, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Apoptosis regulator Bcl-x.
 GN BCL2L1 OR BCL2L OR BCLX.
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 OX NCBI_TaxID=10116;
 RN [1]
 RP SEQUENCE FROM N.A. (ISOFORMS X(L) AND X(S)).
 RC TISSUE=Brain;
 RA Michaelidis T.M.;
 RL Submitted (DEC-1994) to the EMBL/GenBank/DBJ databases.
 RN [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Brain;
 RA Wesselingh S.L., David G.L., Choi S., Veljuna M., Hardwick J.M.;
 RL Submitted (JUN-1995) to the EMBL/GenBank/DBJ databases.

[illegible]

"bcl-x, a bcl-2-related gene that functions as a dominant regulator of apoptotic cell death.";
 Cell 74:597-608(1993).
 [2]
 RN SEQUENCE FROM N.A. (ISOFORM BETA).
 RA Inohara N., Ohta S.,
 RL Submitted (OCT-1996) to the EMBL/Genbank/DBJ databases.
 RN [3]
 RP MUTAGENESIS OF GLY-138, AND HETERODIMERIZATION.
 RX MEDLINE-95372373; PubMed-7644501.
 RA Sedlak T.W., Olvtai Z.N., Yang E., Wang K., Boise L.H., Thompson C.B.,
 RT Kormeyer S.J.;
 RT "Multiple Bcl-2 family members demonstrate selective dimerizations with Bax.";
 RT Proc. Natl. Acad. Sci. U.S.A. 92:7834-7838(1995).
 RN [4]
 RP MUTAGENESIS OF BH1 AND BH2 DOMAINS.
 RX MEDLINE-96170038; PubMed-8596636;
 RA Cheng E.H.-Y., Levine B., Boise L.H., Thompson C.B., Hardwick J.M.,
 RT Kormeyer S.J.;
 RT "Bax-independent inhibition of apoptosis by Bcl-XL.";
 RT Nature 379:554-556(1996).
 RN [5]
 RP STRUCTURE BY NMR OF 1-209.
 RX MEDLINE-97172562; PubMed-9020082;
 RA Sattler M., Liang H., Nettlesheim D., Meadows R.P., Harlan J.E.,
 RA Eberstadt M., Yoon H.S., Shuker S.B., Chang B.S., Minn A.J.,
 RT Thompson C.B., Pesik S.W.;
 RT "Structure of Bcl-XL-Bax peptide complex: recognition between regulators of apoptosis.";
 RT Science 275:983-986(1997).
 RN [6]
 RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS), AND STRUCTURE BY NMR OF 1-209.
 RX MEDLINE-96256675; PubMed-8692274;
 RA Muchmore S.W., Sattler M., Liang H., Meadows R.P., Harlan J.E.,
 RA Yoon H.S., Nettlesheim D., Chang B.S., Thompson C.B., Wong S.L.,
 RA Ng S.L., Pesik S.W.;
 RT "X-ray and NMR structure of human Bcl-XL, an inhibitor of programmed cell death.";
 RT Nature 381:335-341(1996).
 RN [7]
 RP CLEAVAGE BY CASPASES, AND MUTAGENESIS OF ASP-61.
 RX MEDLINE-98118550; PubMed-9435230;
 RA Clem R.J., Cheng E.H.-Y., Karp C.L., Kirsch D.G., Ueno K.,
 RA Takahashi A., Kastan M.B., Griffin D.E., Earnshaw W.C., Velluona M.A.,
 RA Hardwick J.M.;
 RT "Modulation of cell death by Bcl-XL through caspase interaction.";
 RT Proc. Natl. Acad. Sci. U.S.A. 95:554-559(1998).
 CC -I- FUNCTION: Potent inhibitor of cell death. Inhibits activation of caspases (By similarity). Appears to regulate cell death by blocking the voltage-dependent anion channel (VDAC) by binding to it and preventing the release of the caspase activator, cytochrome c, from the mitochondrial membrane. The Bcl-X(s) isoform promotes apoptosis.
 CC -I- SUBUNIT: Bcl-X(L) forms heterodimers with BAX, BAK and Bcl-2.
 CC Heterodimerization with BAX does not seem to be required for anti-apoptotic activity.
 CC SUBCELLULAR LOCATION: MITOCHONDRIAL MEMBRANES AND PERINUCLEAR ENVELOPE (By similarity).
 CC -I- ALTERNATIVE PRODUCTS: 3 ISOFORMS, BCL-X(L) (SHOWN HERE), BCL-X(S) AND BCL-X(BETA); ARE PRODUCED BY ALTERNATIVE SPLICING.
 CC -I- TISSUE SPECIFICITY: BCL-X(S) IS EXPRESSED AT HIGH LEVELS IN CELLS THAT UNDERGO A HIGH RATE OF TURNOVER, SUCH AS DEVELOPING LYMPHOCTES. IN CONTRAST, BCL-X(L) IS FOUND IN TISSUES CONTAINING LONG-LIVED POSTMITOTIC CELLS, SUCH AS ADULT BRAIN.
 CC -I- DOMAIN: The BH4 domain is required for anti-apoptotic activity. The BH1 and BH2 domains are required for both heterodimerization with other Bcl2 family members and for repression of cell death.
 CC -I- PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity.
 CC -I- SIMILARITY: CONTAINS 1 BCL-2 HOMOMOLOGY DOMAIN 1 (BH1).
 CC -I- SIMILARITY: CONTAINS 1 BCL-2 HOMOMOLOGY DOMAIN 2 (BH2).

CC -I- SIMILARITY: CONTAINS 1 BCL-2 HOMOMOLOGY DOMAIN 3 (BH3).
 CC -I- SIMILARITY: CONTAINS 1 BCL-2 HOMOMOLOGY DOMAIN 4 (BH4).
 CC -I- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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 CC -----
 DR EMBL: Z23116; CAAB0662.1; -
 DR EMBL: Z23115; CAAB0661.1; -
 DR EMBL: U72398; AAB17354.1; -
 DR PDB: 1BXL; 29-OCT-97.
 DR PDB: 1LXL; 21-APR-97.
 DR PDB: 1MAZ; 21-APR-97.
 DR MIM: 600039; -
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; BCL_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 DR Apoptosis; Mitochondrion; Alternative splicing; Transmembrane;
 KW 3D-structure.
 FT DOMAIN 4 24 BH4.
 FT 86 100 BH3.
 FT DOMAIN 129 148 BH1.
 FT 180 195 BH2.
 FT TRANSMEM 210 226 POTENTIAL.
 FT SITE 61 61 CLEAVAGE BY CASPASE-1.
 FT VARSPLIC 126 188 MISSING (IN ISOFORM BCL-X(S)).
 FT VARSPLIC 189 233 DPEYLGNNAARSRKGRPNRFLTGMVAGVLLGSL
 FT VARSPLIC 189 233 FSKR -> VRTKPLVCFPSLASGRSTALLVFLLCWVI
 FT VARSPLIC 189 233 VGVDS (IN ISOFORM BCL-X(BETA)).
 FT VARSPLIC 189 233 D->A: NO CLEAVAGE BY CASPASE-1 NOR BY
 FT VARSPLIC 189 233 CASPASE-3.
 FT MUTAGEN 61 61 D->A: NO CLEAVAGE BY CASPASE-1 NOR BY
 FT MUTAGEN 131 133 CASPASE-3.
 FT MUTAGEN 135 137 FRD->VRA: NO HETERODIMERIZATION WITH BAX.
 FT MUTAGEN 138 140 VNM->ATL: LOSS OF ANTI-APOPTOTIC
 FT MUTAGEN 138 140 ACTIVITY.
 FT MUTAGEN 138 140 GRI->ELN: LOSS OF ANTI-APOPTOTIC
 FT MUTAGEN 138 140 ACTIVITY.
 FT MUTAGEN 138 140 G->A: NO HETERODIMERIZATION WITH BAX.
 FT MUTAGEN 148 148 G->E: NO HETERODIMERIZATION WITH BAX.
 FT MUTAGEN 156 156 D->A: NO EFFECT ON CASPASE-1 CLEAVAGE.
 FT MUTAGEN 176 176 D->A: NO EFFECT ON CASPASE-1 CLEAVAGE.
 FT MUTAGEN 188 189 WD->GA: REDUCES ANTI-APOPTOTIC ACTIVITY
 FT MUTAGEN 188 189 BY ABOUT HALF.
 FT MUTAGEN 189 189 D->A: NO EFFECT ON CASPASE-1 CLEAVAGE.
 FT MUTAGEN 189 189 G->A (IN REF. 1; CAAB0661).
 FT CONFLICT 70 70
 FT SEQUENCE 233 AA; 26049 MW; E09D3CDD851AE9BE CRC64;
 SQ
 Query Match 42.1%; Score 424.5; DB 1; Length 233;
 Best Local Similarity 40.9%; Pred. No. 9.2e-31;
 Matches 92; Conservative 23; Mismatches 57; Indels 53; Gaps 4;
 OY 11 RLAVADPFYGRRLRQKGY-----V 28
 DB 6 RELVADPFYGRRLRQKGY-----V 28
 OY 29 CGAGGEGPAD-----PLHQAMRAAGDEFFERRRPFSDLAOLVHTPGSAOQRF 80
 DB 66 NCA-TGHSSLDAREVITMAAVKQALREAGDEFFELRYRRASDLSQHLTPGTAYSQFE 124

RT with suppression of programmed cell death and increased expression of Bcl-2.*;

CC Submitted (MAR-1997) to the EMBL/GenBank/DBJ databases.

CC -i- FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-1) (By similarity).

CC -i- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-xL. Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAf-1 (By similarity).

CC -i- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum (By similarity).

CC -i- DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAf-1 (By similarity).

CC -i- PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle (By similarity). In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases. Dephosphorylated by protein phosphatase 2A (PP2A) (By similarity).

CC -i- PTM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity (By similarity).

CC -i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).

CC -i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).

CC -i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).

CC -i- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).

CC -i- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.

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CC or send an email to license@isb-sib.ch.

CC -----

CC EMBL: U92434; AAB53319.1; .

CC HSSP: Q07817; IMA2.

CC InterPro: IPR002475; BCL2_family.

CC InterPro: IPR003093; BH4.

CC InterPro: IPR000712; BCL_2.

CC Pfam: PF00452; BCL-2; 1.

CC Pfam: PF02180; BH4; 1.

CC SMART: SM00337; BCL; 1.

CC SMART: SM00265; BH4; 1.

CC PROSITE: PS0062; BCL2_FAMILY; 1.

CC PROSITE: PS01080; BH1; 1.

CC PROSITE: PS01258; BH2; 1.

CC PROSITE: PS01259; BH3; 1.

CC PROSITE: PS01260; BH4_1; 1.

CC PROSITE: PS0063; BH4_2; 1.

CC DR Apoptosis; Transmembrane; Mitochondrion; Phosphorylation.

CC KW DOMAIN 10

CC FT DOMAIN 64 68 POLY-PRO.

CC FT DOMAIN 69 72 POLY-ALA.

CC FT DOMAIN 83 97 BH3.

CC FT DOMAIN 126 145 BH1.

CC FT DOMAIN 177 192 BH2.

CC FT TRANSMEM 202 223 POTENTIAL.

CC FT SITE 34 35 CLEAVAGE (BY CASPASES) (BY SIMILARITY).

CC MOD_RES 63 63 PHOSPHORYLATION (BY PKC) (BY SIMILARITY).

CC SEQUENCE 229 AA; 25099 MW; ADIDDAF98FFPFD CRC64;

Query Match 40.9%; Score 412.5; DB 1; Length 229;
Best Local Similarity 37.8%; Pred. No. 1.1e-29;
Matches 85; Conservative 36; Mismatches 59; Indels 45; Gaps 5;

QY 9 DTRALVADPEFGYRLRQKGYCGAG-----RGE----- 35

DB 10 DNRRIYKVIHYHKLISORGEMDAGADGAPGAPAPGILSSOPGRTPADSRTSPPPA 69

QY 36 ---GRADP-----LHQAMRAAGDEFFTRFRRTSDLAQLHVPGSNOQRTQVSDLEFQ 88

DB 70 AAGPASPVPYPPVHLLRLRAGDDFSRRYRDRFAEMSSQHLPTFAREFATVDELFR 129

QY 89 GGPWGRGLVAFVFGAALCAESYKNEEPLVGVQYDMVAVYLETRLADWTHSSGNAEFT 148

DB 130 DGVWGRGLVAFVFGGVCVESYVREKSPYDSTIALMTEYLNRHHTWITDNGMDAFV 189

QY 149 ALYGDGALAEARLRLEGNNMNSVKTVLGNAVALGALVYGVAFFSK 193

DB 190 ELYG----PSMRPLEDFSWSLKLALSLAL-VGACITLGAYLGHK 229

RESULT 11

BCL2_RAT STANDARD; PRT; 236 AA.

ID BCL2_RAT Q62837; Q64032;

AC P49950; Q62837; Q64032;

DT 01-OCT-1996 (Rel. 34, Created)

DT 01-NOV-1997 (Rel. 35, Last sequence update)

DT 16-OCT-2001 (Rel. 40, Last annotation update)

DE Apoptosis regulator Bcl-2.

GN BCL2 OR BCL-2.

OS Rattus norvegicus (Rat).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

OX NCBI_Taxid=10116;

RN [1]

RP SEQUENCE FROM N.A.

RC TISSUE=Brain;

RA MEDLINE=94193015; PubMed=8144041;

RA Sato T., Irie S., Krajevski S., Reed J.C.;

RT "Cloning and sequencing of a cDNA encoding the rat Bcl-2 protein.";

RL Gene 140:291-292(1994).

RN [2]

RP SEQUENCE FROM N.A.

RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Ovary;

RA MEDLINE=95129487; PubMed=7828536;

RA Tilly J.L., Tilly K.I., Kenton M.L., Johnson A.L.;

RT "Expression of members of the bcl-2 gene family in the immature rat

ovary: equine chorionic gonadotropin-mediated inhibition of granulosa

cell apoptosis is associated with decreased bax and constitutive

bcl-2 and bcl-xiong messenger ribonucleic acid levels.";

RL Endocrinology 136:232-241(1995).

RN [3]

RP SEQUENCE OF 19-172 FROM N.A.

RC MEDLINE=95059917; PubMed=7969891;

RA Castren E., Ohga Y., Berzaghi M.P., Tzimagiorgis G., Thoenen H.,

RA Lindholm D.;

RT "bcl-2 messenger RNA is localized in neurons of the developing and

adult rat brain.";

RL Neuroscience 61:165-177(1994).

CC -i- FUNCTION: Suppresses apoptosis in a variety of cell systems

including factor-dependent lymphohematopoietic and neural cells.

Regulates cell death by controlling the mitochondrial membrane

permeability. Appears to function in a feedback loop system with

caspases. Inhibits caspase activity either by preventing the

release of cytochrome c from the mitochondria and/or by binding to

the apoptosis-activating factor (APAF-1).

CC -i- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and

Bcl-xL. Heterodimerization with BAX requires intact BH1 and BH2

domains, and is necessary for anti-apoptotic activity (By

similarity). Also interacts with APAF-1 and RAf-1 (By similarity).

CC -i- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular

membrane of the nuclear envelope and the endoplasmic reticulum.

CC -i- TISSUE SPECIFICITY: Expressed in a variety of tissues, with

CC for interaction with RAF-1.
 CC -1- PKC: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2
 CC anti-apoptotic activity. Growth factor-stimulated phosphorylation
 CC on Ser-70 by PKC is required for the anti-apoptosis activity and
 CC occurs during the G2/M phase of the cell cycle. In the absence of
 CC growth factors, Bcl2 appears to be phosphorylated by other protein
 CC kinases such as ERKs and stress-activated kinases.
 CC Dephosphorylated by protein phosphatase 2A (PP2A).
 CC -1- PKC: Proteolytically cleaved by caspases during apoptosis. The
 CC cleaved protein, lacking the BH4 domain, has pro-apoptotic
 CC activity, causes the release of cytochrome c into the cytosol
 CC promoting further caspase activity.
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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 CC or send an email to license@sib-sib.ch).
 CC -----
 DR EMBL: L31532; AAA37282.1; -
 DR EMBL: M16506; AAA37282.1; JOINED.
 DR EMBL: M16506; AAA37281.1; -
 DR PIR: A25960; TVMSA1.
 DR PIR: B25960; TVMSB1.
 DR PIR: E37332; E37332.
 DR HSSP: 007817; 1MAZ.
 DR MGD: MGI:88136; BCL2.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; BCL-2.
 DR Pfam: PF00452; BCL-2; 1.
 DR Pfam: PF02180; BCL-2; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS00062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4; 1; 1.
 DR PROSITE: PS00063; BH4_2; 1.
 DR Apoptosis; Alternative splicing; Transmembrane; Mitochondrion;
 KW Phosphorylation.
 FT DOMAIN 10 30 BH4.
 FT DOMAIN 90 104 BH3.
 FT DOMAIN 133 152 BH1.
 FT DOMAIN 184 199 BH2.
 FT TRANSMEM 209 230 POTENTIAL.
 FT SITE 34 35 CLEAVAGE (BY CASPASES) (BY SIMILARITY).
 FT MOD_RES 70 75 PHOSPHORYLATION (BY PKC).
 FT VARSPDIC 193 236 DAFVELYGSMPRLDFEWSLSKTLTSLALVGACITLGAAYL
 FT GHK -> VGACIVE (IN ISOFORM BETA).
 SO SEQUENCE 236 AA; 26425 MW; AAB5EF6B0766B0A CRC64;

Query Match 40.5%; Score 409; DB 1; Length 236;
 Best Local Similarity 37.1%; Pred. No. 2; 2e-29;
 Matches 86; Conservative 35; Mismatches 59; Indels 52; Gaps 5;

QY 9 DTRALVADFCYRLRQKGYCGAG-----PG----- 34
 DB 10 DNRREIVMKYTHYKLSQKGYEMDADADAPLGAAPTPGIFSPQESPMMPAVHREMAART 69
 QY 35 -----EGPADP-----LHQAMRAAGDEFETFRFRFESDLAALQLVHTGSAQGRFTQ 81
 DB 70 SPLRLVATVAGPALSPVPCVHLILRRAGDDEFRRYRDRFAEMSSQLHTLPFTARGRFAT 129

QY 82 VSDLEFGCPNMGRLVAFVFGALCAESVKNKEMLVGVODMMVAYLETRLDNIHSS 141
 DB 130 VVEELFDYDGNWGRIVAFEFEGGVCWCVESVNRKMSPLVDNIALMMPFLYLRHRLHTWIDN 189
 QY 142 GGMAEFFALYGDGALLEARLRBSNMASVRYTLGVALALALTYVGFNFASK 193
 DB 190 GGMDFAEVLYG-----PSMRPLDFEWSLSKTLTSLAL-VGACITLGAAYLGHK 236

RESULT 13
 BCL2_HUMAN STANDARD; PRT; 239 AA.
 ID BCL2_HUMAN
 AC P10415; P10416; Q16197; Q13842;
 DT 01-MAR-1989 (Rel. 10, Created)
 DT 01-APR-1993 (Rel. 25, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Apoptosis regulator Bcl-2.
 GN BCL2.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
 OX NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A. (ISOFORMS ALPHA AND BETA).
 RX MEDLINE=86259760; PubMed=3523487;
 RA Tsujimoto Y., Croce C.M.;
 RT "Analysis of the structure, transcripts, and protein products of
 RT bcl-2, the gene involved in human follicular lymphoma.";
 RT Proc. Natl. Acad. Sci. U.S.A. 83:5214-5218(1986).
 RN [2]
 RP REVISIONS TO 96; 110 AND 237.
 RX MEDLINE=92375724; PubMed=1508712;
 RA Eguchi Y., Ewert D.L., Tsujimoto Y.;
 RT "Isolation and characterization of the chicken bcl-2 gene: expression
 RT in a variety of tissues including lymphoid and neuronal organs in
 RT adult and embryo.";
 RT Nucleic Acids Res. 20:4187-4192(1992).
 RN [3]
 RP SEQUENCE FROM N.A. (ISOFORM ALPHA).
 RX MEDLINE=87002486; PubMed=2875799;
 RA Cleary M.L., Smith S.D., Sklar J.;
 RT "Cloning and structural analysis of cDNAs for bcl-2 and a hybrid bcl-
 RT 2/immunoglobulin transcript resulting from the t(14;18)
 RT translocation.";
 RT Cell 47:19-28(1986).
 RN [4]
 RP SEQUENCE FROM N.A. (ISOFORM ALPHA).
 RX MEDLINE=88196071; PubMed=2834197;
 RA Seto M., Jaeger U., Hockett R.D., Graninger W., Bennett S.,
 RA Goldman P., Korsmeyer S.J.;
 RT "Alternative promoters and exons, somatic mutation and deregulation
 RT of the Bcl-2-Ig fusion gene in lymphoma.";
 RT EMBO J. 7:123-131(1988).
 RN [5]
 RP SEQUENCE OF 1-131 FROM N.A. (ISOFORM ALPHA), AND VARIANTS NHL.
 RX MEDLINE=92096610; PubMed=1339299;
 RA Tanaka S., Louie D.C., Kant J.A., Reed J.C.;
 RT "Frequent incidence of somatic mutations in translocated BCL2
 RT oncogenes of non-Hodgkin's lymphomas.";
 RT Blood 79:229-237(1992).
 RN [6]
 RP SUBCELLULAR LOCATION.
 RX MEDLINE=91066924; PubMed=2250705;
 RA Hockenbery D., Nunez G., Millman C., Schreiber R.D., Korsmeyer S.J.;
 RT "Bcl-2 is an inner mitochondrial membrane protein that blocks
 RT programmed cell death.";
 RT Nature 348:334-336(1990).
 RN [7]
 RP MUTAGENESIS.
 RX MEDLINE=94239528; PubMed=8183370;
 RA Yin X.-M., Oliva Z.N., Korsmeyer S.J.;
 RT "BH1 and BH2 domains of Bcl-2 are required for inhibition of
 RT apoptosis and heterodimerization with Bax.";

RL Nature 369:321-323(1994).
 RN [8]
 RP CLEAVAGE BY CASPASES, AND MUTAGENESIS.
 RX MEDLINE=98057466; PubMed=9395403;
 RA Cheng E.H.-Y., Kirsch D.G., Clem R.J., Ravi R., Kastan M.B., Bedi A.,
 RA Ueno K., Hardwick J.M.:
 RT "Conversion of Bcl-2 to a Bax-like death effector by caspases.";
 RL Science 278:1966-1988(1997).
 RN [9]
 RP REVIEW ON PHOSPHORYLATION.
 RX MEDLINE=21260650; PubMed=1368354;
 RA Ruvolo P.P., Deng X., May W.S.:
 RT "Phosphorylation of Bcl2 and regulation of apoptosis.";
 RL Leukemia 15:515-522(2001).
 RN [10]
 RP PHOSPHORYLATION BY ASK1/JNK1.
 RX MEDLINE=20036804; PubMed=10567572;
 RA Yamamoto K., Ichijo H., Korsmeyer S.J.:
 RT "Bcl-2 is phosphorylated and inactivated by an ASK1/Jun N-terminal
 RT protein kinase pathway normally activated at G(2)/M.";
 RL Mol. Cell. Biol. 19:8469-8478(1999).
 CC -1- FUNCTION: Suppresses apoptosis in a variety of cell systems
 CC including factor-dependent lymphohematopoietic and neural cells.
 CC Regulates cell death by controlling the mitochondrial membrane
 CC permeability. Appears to function in a feedback loop system with
 CC caspases. Inhibits caspase activity either by preventing the
 CC release of cytochrome c from the mitochondria and/or by binding to
 CC the apoptosis-activating factor (APAF-1).
 CC -1- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and
 CC Bcl-x(l). Heterodimerization with BAX requires intact BH1 and BH2
 CC domains, and is necessary for anti-apoptotic activity (by
 CC similarity). Also interacts with APAF-1 and Raf-1.
 CC -1- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular
 CC membrane of the nuclear envelope and the endoplasmic reticulum.
 CC -1- ALTERNATIVE PRODUCTS: 2 isoforms; alpha (shown here) and beta;
 CC are produced by alternative splicing.
 CC -1- TISSUE SPECIFICITY: Expressed in a variety of tissues.
 CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity and
 CC for interaction with Raf-1.
 CC -1- PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2
 CC anti-apoptotic activity. Growth factor-stimulated phosphorylation
 CC on Ser-70 by PKC is required for the anti-apoptosis activity and
 CC occurs during the G2/M phase of the cell cycle. In the absence of
 CC growth factors, Bcl2 appears to be phosphorylated by other protein
 CC kinases such as ERKs and stress-activated kinases.
 CC -1- PTM: Proteolytically cleaved by caspases during apoptosis. The
 CC cleaved protein, lacking the BH4 domain, has pro-apoptotic
 CC activity, causes the release of cytochrome c into the cytosol
 CC promoting further caspase activity.
 CC -1- DISEASE: Involved in follicular lymphoma (FL) (also known as type
 CC II chronic lymphatic leukemia) by a chromosomal translocation
 CC t(14;18)(q32;q21) which involves Bcl2 and immunoglobulin gene
 CC regions.
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
 CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 4 (BH4).
 CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
 CC -----
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 CC -----
 CC EMBL: M13994; AAA51813.1; ALT_SEQ.
 CC EMBL: M13995; AAA51814.1; ALT_SEQ.
 CC EMBL: M14745; AAA35591.1; -
 CC EMBL: X06487; CAA29778.1; -
 CC EMBL: S72602; AAD14111.1; ALT_SEQ.

DR PIR: A29409; TVH0A1.
 DR PIR: B29409; TVH0B1.
 DR PIR: A24428; TVH0BC.
 DR PIR: C37332; C37332.
 DR PIR: D37332; D37332.
 DR HSP: 007817; IMAZ.
 DR MIM: 151430; -
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR003093; BH4.
 DR InterPro: IPR000712; Bcl_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS00662; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 DR Proto-oncogene: Apoptosis; Alternative splicing; Transmembrane;
 KW Mitochondrion; Phosphorylation; Chromosomal translocation;
 KW Polymorphism; Disease mutation;
 KW
 FT DOMAIN 10 30
 FT BH4.
 FT BH3.
 FT BH1.
 FT BH2.
 FT TRANSMEM 212 233
 FT SITE 34 35
 FT MOD_RES 70 70
 FT VASAPLIC 196 239
 FT
 FT VARIANT 7 7
 FT
 FT VARIANT 59 59
 FT
 FT VARIANT 93 93
 FT
 FT MUTAGEN 34 34
 FT MUTAGEN 64 64
 FT MUTAGEN 145 145
 FT
 FT MUTAGEN 188 188
 FT
 FT CONFLICT 48 48
 FT CONFLICT 59 59
 FT CONFLICT 117 117
 FT CONFLICT 129 129
 FT
 FT SEQUENCE 239 AA; 26266 MW; 3C49F2B714DC9CB CRC64;
 SO
 Query Match 40.5%; Score 408.5; DB 1; Length 239;
 Best Local Similarity 36.6%; Pred. No. 2.5e-29;
 Matches 86; Conservative 35; Mismatches 59; Indels 55; Gaps 5;
 QY 9 DTRALVADVGVRLKRGKGYGCGAG-----PGE----- 35
 DB 10 DNEIRIVKVIHYKLSQGYEMDAGCAAPGAPAPGIFSSPGHTPPAPASRDVPAT 69
 QY 36 -----GPAADP-----LHQAMRAAGDEFTERRRFPSSDLAOLHVTGSAOQR 78
 DB 70 SPIQTPAAGPAAAGPALSPVPVYVLTLRQAGDDFSRRYRDFAEWSSQLHLPFYARGR 129
 QY 79 FTVQSDLPFGGPNMGRVLVAFVFGAALCAESYKREMEPLNQYQDMMVAYLETRADMI 138
 DB 130 FAIVVEELPFDGYNMGRIVAFEFEGVCYVESYNNRMSPLVDNIALMKEYLNRHLHWI 189
 QY 139 HSSGGMAEFTALYGDALBEARLRKGNMNASVTVLTGVALGALVTVGAFPAASK 193
 DB 190 QDNGWDAAFEVLEYG-----PSMRPLFDPSWLSLKTLLSLAL-VGACITTLGAYLGHK 239

RESULT 14
BCL2_CR10 STANDARD; PRT: 236 AA.
ID BCL2_CR10
AC Q9JUV8;
DT 16-OCT-2001 (Rel. 40, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Apoptosis regulator Bcl-2.
GN BCL2
OS Cricetus longicaudatus (Long-tailed hamster) (Chinese hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Cricetulus.
OX NCBI_TaxID=10030;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=ovary;
RX MEDLINE=20431763; PubMed=10973819;
RA Tomicic M.T., Christmann M., Kaina B.;
RT "Cloning and functional analysis of cDNA encoding the hamster Bcl-2 protein.";
RT Biochem. Biophys. Res. Commun. 275:899-903(2000).
RN [2]
RP SEQUENCE FROM N.A., AND CLEAVAGE BY CASPASES.
RX MEDLINE=21092839; PubMed=11181062;
RA Tomicic M.T., Kaina B.;
RT "Hamster Bcl-2 protein is cleaved in vitro and in cells by caspase-9 and caspase-3.";
RT Biochem. Biophys. Res. Commun. 281:404-408(2001).
CC -1- FUNCTION: Suppresses apoptosis in a variety of cell systems including factor-dependent lymphohematopoietic and neural cells. Regulates cell death by controlling the mitochondrial membrane permeability. Appears to function in a feedback loop system with caspases. Inhibits caspase activity either by preventing the release of cytochrome c from the mitochondria and/or by binding to the apoptosis-activating factor (APAF-1) (By similarity).
CC -1- SUBUNIT: Forms homodimers, and heterodimers with BAX, BAD, BAK and Bcl-x(L). Heterodimerization with BAX requires intact BH1 and BH2 domains, and is necessary for anti-apoptotic activity (By similarity). Also interacts with APAF-1 and RAIF-1 (By similarity).
CC -1- SUBCELLULAR LOCATION: Outer mitochondrial membrane, intracellular membrane of the nuclear envelope and the endoplasmic reticulum.
CC -1- DOMAIN: The BH4 domain is required for anti-apoptotic activity and for interaction with RAIF-1 (By similarity).
CC -1- PTM: Phosphorylation/dephosphorylation on Ser-70 regulates Bcl2 anti-apoptotic activity. Growth factor-stimulated phosphorylation on Ser-70 by PKC is required for the anti-apoptosis activity and occurs during the G2/M phase of the cell cycle (By similarity). In the absence of growth factors, Bcl2 appears to be phosphorylated by other protein kinases such as ERKs and stress-activated kinases (By similarity). Dephosphorylated by protein phosphatase 2A (PP2A) (By similarity).
CC -1- PM: Proteolytically cleaved by caspases during apoptosis. The cleaved protein, lacking the BH4 domain, has pro-apoptotic activity, causes the release of cytochrome c into the cytosol promoting further caspase activity..
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 3 (BH3).
CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation at the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to license@sib-sib.ch).
CC EMBL: AJ271720; CAB92245.1; -
DR HSSP: P53563; IAF3.

DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR003093; BH4_1.
DR InterPro: IPR00712; BCL2.
DR Pfam: PF00452; BCL-2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PSS0062; BCL2_FAMILY; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS01259; BH3; 1.
DR PROSITE: PS01260; BH4_1; 1.
DR PROSITE: PSS0063; BH4_2; 1.
KW Apoptosis; Transmembrane; Mitochondrion; Phosphorylation.
FT DOMAIN 10 30 BH4.
FT DOMAIN 90 104 BH3.
FT DOMAIN 133 152 BH1.
FT DOMAIN 184 199 BH2.
FT TRANSMEM 209 230 POTENTIAL.
FT SITE 64 65 CLEAVAGE (BY CASPASE-3 AND CASPASE-9).
FT MOD_RES 70 70 PHOSPHORYLATION (BY PKC) (BY SIMILARITY).
SQ SEQUENCE 236 AA; 26491 MW; BCCADFLIER337228 CRC64;

Query Match 39.5%; Score 399; DB 1; Length 236;
Best Local Similarity 34.9%; Pred. No. 1,7e-28;
Matches 81; Conservative 35; Mismatches 64; Indels 52; Gaps 3;

OY 9 DTRALVADFGVGRLOKGY----- 27
DB 10 DREELVMKRIHYKLSORGEDVDGVDAAPLGADPTPEIFSPQPSNTPAVHRDMART 69
OY 28 -----VCGAGGEGEPADPLHQARRAAGDEFFRRFRFSDLAQLHYTPGSAQOFRFQ 81
DB 70 SFLRLVATGTLTGLSPVPVYVHLTLRRAGDPSRRYRDFAMSSQLHTFPTARGFRAT 129
OY 82 VSEDLFGGPNMGRVLAFFVFGALCAESYKEMEPYGVQVDMMVAFLERLMDHSS 141
DB 130 VVEELFRDGVNNGRIYAFEFVGVCVESVREMSPLDNLALMWTETLNRLHRLTWIDN 189
OY 142 GGMAEFTALYGDALEEARLRREGNMASVRYLTGVALVAGALVTVGAFPAK 193
DB 190 GGDAAFEVLG-----PSVPLDFEWSLTKLTLSLAL-VGACTITGTYLGHK 236

RESULT 15
AR11_XENLA STANDARD; PRT: 204 AA.
ID AR11_XENLA
AC Q91828;
DT 01-NOV-1997 (Rel. 35, Created)
DT 01-NOV-1997 (Rel. 35, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE Apoptosis regulator R11 (XR11).
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Piploidea; Pipidae;
OC Xenopodinae; Xenopus.
OX NCBI_TaxID=8335;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Head;
RX MEDLINE=95331613; PubMed=7607538;
RA Cruz-Reyes J., Tata J.R.;
RT "Cloning, characterization and expression of two Xenopus bcl-2-like cell-survival genes.";
RL Gene 158:171-179(1995).
CC -1- FUNCTION: CONFERS STRONG PROTECTION AGAINST CELL DEATH.
CC -1- SUBCELLULAR LOCATION: Membrane-bound (Potential).
CC -1- DEVELOPMENTAL STAGE: DEVELOPMENTAL REGULATION ONLY OCCURS IN THE BRAIN OF MID-METAMORPHOSIS TO POST-METAMORPHOSIS TADPOLES AND ADULTS, WHERE AN INCREASE IN BCL-2 HOMOLOG DOMAIN 1 (BH1).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 2 (BH2).
CC -1- SIMILARITY: CONTAINS 1 BCL-2 HOMOLOG DOMAIN 1 (BH1).

CC -1- SIMILARITY: BELONGS TO THE BCL-2 FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: X82461; CAA57844.1; -
DR HSSP: Q07817; IMAZ.
DR InterPro: IPR002475; BCL2_family.
DR InterPro: IPR003093; BH4.
DR InterPro: IPR000712; BCL_2.
DR Pfam: PF00452; BCL_2; 1.
DR Pfam: PF02180; BH4; 1.
DR SMART: SM00337; BCL; 1.
DR SMART: SM00265; BH4; 1.
DR PROSITE: PS01080; BH1; 1.
DR PROSITE: PS01258; BH2; 1.
DR PROSITE: PS00062; BCL2_FAMILY; 1.
DR Apoptosis; Transmembrane.
KW DOMAIN 101 120 BH1.
FT DOMAIN 152 167 BH2.
FT TRANSMEM 181 198 POTENTIAL.
SQ SEQUENCE 204 AA: 23379 MW: 38FC6BE6DDA4CA03 CRC64;

Query Match 36.3%; Score 366; DB 1; Length 204;
Best Local Similarity 41.5%; Pred. No. 1.2e-25;
Matches 81; Conservative 25; Mismatches 63; Indels 26; Gaps 4;
QY 10 TRALVADFEYGRLRQKGYC-----GAGPGEGPADPLHQAMR 47
DB 5 SDDLVEKEVSKRLSQ-NEACRFSNNPNMPYLMEPSTSERPGEGATGIVEEVLAQL 63
QY 48 AAGDEFETFRRTFSDLAQLHVTGPSAQOFTQVSDLEFGGPNWGRVAFVFGALC 107
DB 64 EATEFEELRYORAFSDLTLSQHLITQDTAQOSFOQVMGELFRDGTNWKRIVAFSFGRLC 123
QY 108 AESVKEKEPLVGVQVDMNVAYLETRLADWISSGMAEFTALYDGALEEARLRE--G 165
DB 124 VESANKEMTDLPRIVQNMVNYLEHTLQPMQENGMEAFVGLYGNNAQSRSEQRFG 183
QY 166 NWASRVTLTGAVAL 180
DB 184 RLITV-VMLTGVFAL 197

Search completed: June 10, 2002, 10:32:13
Job time: 346 sec

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 10, 2002, 10:31:19 ; Search time 46.07 Seconds
(without alignments)
724.724 Million cell updates/sec

Title: US-09-155-327E-9
Perfect score: 1009
Sequence: 1 MATPASPDPDRALVADPVG.....LTGVALGALVWGAFASK 193

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 562222 seqs, 172994929 residues
Total number of hits satisfying chosen parameters: 562222

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :
1: SPREMBL_19:*
2: sp_archaea:*
3: sp_bacteria:*
4: sp_fungi:*
5: sp_human:*
6: sp_invertebrate:*
7: sp_mammal:*
8: sp_mmc:*
9: sp_organelle:*
10: sp_phage:*
11: sp_plant:*
12: sp_ricent:*
13: sp_virus:*
14: sp_vertebrate:*
15: sp_unclassified:*
16: sp_virus:*
17: sp_bacteriap:*
17: sp_archaeap:*

pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	1002	99.3	193	11	088996
2	767	76.0	178	11	09CTW5
3	436.5	43.3	233	6	Q9MYW4
4	432.5	42.9	233	11	035844
5	428.5	42.5	233	6	Q9N1A2
6	425.5	42.2	233	6	Q9WZS7
7	401	39.7	180	6	Q9HDD5
8	401	39.7	217	11	Q9N935
9	399.5	39.6	180	6	Q9EDX7
10	397	39.3	238	13	Q90Z98
11	395	39.1	236	11	Q923R6
12	371.5	36.8	188	11	Q9QWZ2
13	371.5	36.8	235	11	Q35843
14	369.5	36.6	188	4	Q9H1R6
15	368	36.5	204	13	Q90ZB2
16	347	34.4	219	11	Q9N936

17	187	18.5	209	11	Q9TK59	Q9JK59 rattus norv
18	182	18.0	170	11	Q9WU15	Q9WU15 rattus norv
19	177.5	17.6	192	13	Q919N4	Q919N4 brachydanto
20	175.5	17.4	221	13	Q98013	Q98013 xenopus lae
21	165.5	16.4	125	4	Q9H1R5	Q9H1R5 homo sapien
22	163	16.2	235	5	Q967D2	Q967D2 geodalia cydo
23	162	16.1	58	11	Q9R1B3	Q9R1B3 rattus norv
24	157.5	15.6	163	6	Q9WZS6	Q9WZS6 ovis aries
25	154	15.3	173	11	Q9JK13	Q9JK13 rattus norv
26	148.5	14.7	218	5	Q9N754	Q9N754 suberites d
27	147.5	14.6	179	4	Q9NYG7	Q9NYG7 homo sapien
28	145	14.4	149	6	Q9GMC7	Q9GMC7 ovis aries
29	144	14.3	177	13	Q90ZM1	Q90ZM1 gallus gall
30	142	14.1	211	13	Q9W6F1	Q9W6F1 gallus gall
31	142	14.1	212	4	Q9W6F3	Q9W6F3 homo sapien
32	141.5	14.0	179	12	Q9E1T2	Q9E1T2 brachydanto
33	141	14.0	255	13	Q919N3	Q919N3 rattus norv
34	138.5	13.7	213	11	Q35425	Q35425 rattus norv
35	137.5	13.6	213	4	Q9ULJ2	Q9ULJ2 homo sapien
36	137.5	13.6	213	13	Q91812	Q91812 gallus gall
37	137.5	13.6	213	13	Q9DGJ5	Q9DGJ5 gallus gall
38	136	13.5	114	4	Q9NR76	Q9NR76 homo sapien
39	130	12.9	162	12	Q9DH00	Q9DH00 meleagrid h
40	129.5	12.8	330	11	Q921P3	Q921P3 rattus norv
41	127.5	12.6	331	11	P97287	P97287 mus musculu
42	124.5	12.3	91	11	Q923W5	Q923W5 peromyscus
43	121.5	12.0	91	11	Q923W6	Q923W6 peromyscus
44	121	12.0	174	13	Q9W6F2	Q9W6F2 gallus gall
45	119	11.8	300	5	Q9V9C8	Q9V9C8 dtrosophila

ALIGNMENTS

RESULT	ID	PRELIMINARY:	PRT:	193 AA.
088996	088996			
AC	01-NOV-1998 (TREMBlrel. 08, Created)			
DT	01-NOV-1998 (TREMBlrel. 08, Last sequence update)			
DT	01-DEC-2001 (TREMBlrel. 19, Last annotation update)			
DE	BCL-W.			
GN	BCL-W.			
OS	Rattus norvegicus (Rat).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.			
OX	NCBI_Taxid-10116;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RC	STRAIN-SPRAGUE-DAWLEY; TISSUE-BRAIN;			
RX	MEDLINE-99292146; Pubmed-10366024;			
RA	Hammer S., Skoglosa Y., Lindholm D.;			
RT	"Differential expression of bcl-w and bcl-x messenger RNA in the			
RT	developing and adult rat nervous system.;"			
RL	Neuroscience 91:673-684(1999).			
DR	EMBL: AF096291; AAC64200.1; .			
DR	HSSP: Q07817; 1MAZ;			
DR	InterPro: IPR002475; BCL2_family.			
DR	InterPro: IPR007112; BCL-2.			
DR	InterPro: IPR003093; BH4.			
DR	Pfam: PF00452; Bcl-2; 1.			
DR	Pfam: PF02180; BH4; 1.			
DR	SMART: SM00337; BCL; 1.			
DR	SMART: SM00265; BH4; 1.			
DR	PROSITE: PS50062; BCL2_FAMILY; 1.			
DR	PROSITE: PS01080; BH1; 1.			
DR	PROSITE: PS01258; BH2; 1.			
DR	PROSITE: PS01260; BH4_1; 1.			
DR	PROSITE: PS50063; BH4_2; 1.			
SQ	SEQUENCE 193 AA; 20820 MW; 36D6742FA529AFB4 CRC64;			

Query Match 99.3% Score 1002 DB 11 Length 193;

Best Local Similarity 99.0%; Pred. No. 6, 7e-80;
Matches 191; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MATPASTPDRALVADPVGRLKOKGYCGAGGEGSPADPLHQARRAGDEFFTRFRRT 60
1 MATPASTPDRALVADPVGRLKOKGYCGAGGEGSPADPLHQARRAGDEFFTRFRRT 60
Db 1 MATPASTPDRALVADPVGRLKOKGYCGAGGEGSPADPLHQARRAGDEFFTRFRRT 60
QY 61 FSDLAQLHVTGSAOQRTQVSDLEFGGPNMGRVAFVFGAALCAESVKNKEEPLVG 120
61 FSDLAQLHVTGSAOQRTQVSDLEFGGPNMGRVAFVFGAALCAESVKNKEEPLVG 120
Db 61 FSDLAQLHVTGSAOQRTQVSDLEFGGPNMGRVAFVFGAALCAESVKNKEEPLVG 120
QY 121 QVDDMWAVYLETRLADMIHSSGGMAEFTALYDGALEEARRLREGNMASVFTVLGAVAL 180
121 QVDDMWAVYLETRLADMIHSSGGMAEFTALYDGALEEARRLREGNMASVFTVLGAVAL 180
Db 121 QVDDMWAVYLETRLADMIHSSGGMAEFTALYDGALEEARRLREGNMASVFTVLGAVAL 180
QY 181 GALVTGAFEPASK 193
181 GALVTGAFEPASK 193
Db 181 GALVTGAFEPASK 193

RESULT 2

ID Q9CYW5 PRELIMINARY; PRT; 178 AA.

AC Q9CYW5; 01-JUN-2001 (TREMBlrel. 17, Created)
DT 01-JUN-2001 (TREMBlrel. 17, Last sequence update)
DE 01-DEC-2001 (TREMBlrel. 19, Last annotation update)
DE BCL2-LIKE 2.
GN BCL2L2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6J; TISSUE=EMBRYO;
RA MEDLINE=21085660; PubMed=11217851;
RA Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA Arkawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA Aikawa K., Iwawa M., Nishi K., Kiyosawa H., Kondo S., Yamahara I.,
RA Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA Flieschmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA Sakai K., Okido T., Furuno M., Aono H., Balderelli K., Barsh G.,
RA Blake J., Boffelli D., Bojunga N., Carimini P., de Bonaldo M.F.,
RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA Guenrich S., Hill D., Hofmann M., Humé D.A., Kamuya M., Lee N.H.,
RA Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA Suzuki H., Toyooka K., Wang K.H., Weitz C., Whitaker C., Wilmberg L.,
RA Wyshaw-Boris A., Yoshida K., Hasegawa Y., Kawai H., Kohsaki S.,
RA Hayashizaki Y.,
RT "Functional annotation of a full-length mouse cDNA collection."
RU Nature 409:685-690(2001).
DR EMBL; AK013244; BAB28740.1; -
DR HSSP; Q07817; IMAZ.
DR MGD; MGI:108052; Bcl2L2.
DR InterPro; IPR002475; BCL2_family.
DR InterPro; IPR000712; BCL_2.
DR InterPro; IPR003093; BH4.
DR Pfam; PF00452; Bcl-2; 1.
DR Pfam; PF02180; BH4; 1.
DR SMART; SM00337; BCL; 1.
DR SMART; SM00265; BH4; 1.
DR PROSITE; PS00662; BCL2_FAMILY; 1.
DR PROSITE; PS01080; BH1; 1.
DR PROSITE; PS0063; BH4_2; 1.
SQ SEQUENCE 178 AA; 19147 MW; E2D4C3F79528B9D7 CRC64;

Query Match 76.0%; Score 767; DB 11; Length 178;
Best Local Similarity 96.0%; Pred. No. 2e-59;
Matches 144; Conservative 2; Mismatches 4; Indels 0; Gaps 0;

QY 1 MATPASTPDRALVADPVGRLKOKGYCGAGGEGSPADPLHQARRAGDEFFTRFRRT 60
1 MATPASTPDRALVADPVGRLKOKGYCGAGGEGSPADPLHQARRAGDEFFTRFRRT 60
Db 1 MATPASTPDRALVADPVGRLKOKGYCGAGGEGSPADPLHQARRAGDEFFTRFRRT 60
QY 61 FSDLAQLHVTGSAOQRTQVSDLEFGGPNMGRVAFVFGAALCAESVKNKEEPLVG 120
61 FSDLAQLHVTGSAOQRTQVSDLEFGGPNMGRVAFVFGAALCAESVKNKEEPLVG 120
Db 61 FSDLAQLHVTGSAOQRTQVSDLEFGGPNMGRVAFVFGAALCAESVKNKEEPLVG 120
QY 121 QVDDMWAVYLETRLADMIHSSGGMAEFTAL 150
121 QVDDMWAVYLETRLADMIHSSGGMAEFTAL 150
Db 121 QVDDMWAVYLETRLADMIHSSGGMAEFTAL 150

RESULT 3

ID Q9MYW4 PRELIMINARY; PRT; 233 AA.

AC Q9MYW4; 01-OCT-2000 (TREMBlrel. 15, Created)
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)
DE 01-OCT-2001 (TREMBlrel. 18, Last annotation update)
DE BCL-X.
OS Oryctolagus cuniculus (Rabbit).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
OX NCBI_TaxID=9986;
RN [1]
RP SEQUENCE FROM N.A.
RA Knott J.C., Robertson L., James E.R.;
RT "Rabbit Bcl-X".
RU Submitted (JUL-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY005131; AAF88137.1; -
DR HSSP; P53563; IAF3.
DR InterPro; IPR002475; BCL2_family.
DR InterPro; IPR000712; BCL_2.
DR InterPro; IPR003093; BH4.
DR Pfam; PF00452; Bcl-2; 1.
DR Pfam; PF02180; BH4; 1.
DR SMART; SM00337; BCL; 1.
DR SMART; SM00265; BH4; 1.
DR PROSITE; PS00662; BCL2_FAMILY; 1.
DR PROSITE; PS01080; BH1; 1.
DR PROSITE; PS01258; BH2; 1.
DR PROSITE; PS01259; BH3; 1.
DR PROSITE; PS01260; BH4; 1.
DR PROSITE; PS0063; BH4_2; 1.
SQ SEQUENCE 233 AA; 25986 MW; 12F0F30344D53F93 CRC64;

Query Match 43.3%; Score 436.5; DB 6; Length 233;
Best Local Similarity 41.5%; Pred. No. 2e-30; Indels 51; Gaps 4;

QY 11 RALVADPVGRLKOKGYC-----GAG-----PCEGPA 39
11 RALVADPVGRLKOKGYC-----GAG-----PCEGPA 39
Db 6 RELVADPVGRLKOKGYC-----GAG-----PCEGPA 39
QY 40 D-----PLHQARRAGDEFFTRFRRTFSDLAQLHVTGSAOQRTQ 81
40 D-----PLHQARRAGDEFFTRFRRTFSDLAQLHVTGSAOQRTQ 81
Db 66 NGATGSSSTLDAREVLPMTAVKQALREADDEFFLRRFAFSDLTSLQHLITPGTAVQSPFQ 125
66 NGATGSSSTLDAREVLPMTAVKQALREADDEFFLRRFAFSDLTSLQHLITPGTAVQSPFQ 125
QY 82 VSDLEFGGPNMGRVAFVFGAALCAESVKNKEEPLVGQVDDMWAVYLETRLADMIHSS 141
82 VSDLEFGGPNMGRVAFVFGAALCAESVKNKEEPLVGQVDDMWAVYLETRLADMIHSS 141
Db 126 VVNEFLPDGVNMGRIAFVFGAALCAESVKNKEEPLVSRIAAMWATYTLNDHLEPWIOEN 185
126 VVNEFLPDGVNMGRIAFVFGAALCAESVKNKEEPLVSRIAAMWATYTLNDHLEPWIOEN 185
QY 142 GGAETALYDGALEEARRLRE--GNASVFTVLGAVL 183
142 GGAETALYDGALEEARRLRE--GNASVFTVLGAVL 183
Db 186 GGWDTFVELLYGNMAAESRKGQERENRWFITGMVAGVLLGSL 229
186 GGWDTFVELLYGNMAAESRKGQERENRWFITGMVAGVLLGSL 229

```

RESULT 4
ID 035844 PRELIMINARY; PRT; 233 AA.
AC 035844;
DT 01-JAN-1998 (TREMBLrel. 05, Created)
DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)
DE 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE BCL-XL.
GN BCL2L.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-B6/CBA; TISSUE=THYMUS;
RX MEDLINE=98051053; PubMed=9390687;
RA Yang X.-F., Weber G.F., Cantor H.;
RT "A novel Bcl-x isoform connected to the T cell receptor regulates
RT apoptosis in T cells.";
RL EMBL: U51278; AAC53459.1; -.
DR HSSP; P53563; IAF3.
DR MGD; MGI:86139; BCL2L.
DR InterPro; IPR002475; BCL2_family.
DR InterPro; IPR000712; BCL_2.
DR InterPro; IPR003093; BH4.
DR Pfam; PF00452; Bcl-2; 1.
DR Pfam; PF02180; BH4; 1.
DR SMART; SM00337; BCL; 1.
DR SMART; SM00265; BH4; 1.
DR PROSITE; PS50062; BCL2_FAMILY; 1.
DR PROSITE; PS01080; BH1; 1.
DR PROSITE; PS01258; BH2; 1.
DR PROSITE; PS01259; BH3; 1.
DR PROSITE; PS01260; BH4_1; 1.
DR PROSITE; PS01260; BH4_2; 1.
DR PROSITE; PS50063; BH4_2; 1.
SQ SEQUENCE 233 AA; 26033 MW; 3083F2D8327E072E CRC64;

Query Match 42.9%; Score 432.5; DB 11; Length 233;
Best Local Similarity 41.3%; Pred. No. 4.4e-30;
Matches 93; Conservative 23; Mismatches 56; Indels 53; Gaps 4;

QY 11 RALVADFYGYRLKRGY-----Y 28
DB 6 RELVYDFLSYKLSQKGYSMQSFVDENRTPEAETFEARETPSAINGNPSMHLADSPAV 65
QY 29 CGAGPEGGPAD-----PLHQAMRAAGDEFEETRRRPSDLAOLHVTGSAOQRT 80
DB 66 NGA-TGHSSSLDAREVTPMAAVKQALREAGDEFELKRRAFSDLSQHLITPGTAYOSFE 124
QY 81 QVSDLEFQGGPMGRVLAFFVFGALCAESYKMEPELVGOVDMVAVYLETRLADIHS 140
DB 125 QVNNLEFRDGVNMGRIYAFFSFGALCVESYKMEQVLSRIASMMATYLDHLEPWIOE 184
QY 141 SGGMAEFTALYGDALAEARLRREG--NMASVRYVLTGAVALGAL 183
DB 185 NGMDTFEVLGYGNNAAESRKGEGRFNRFLTGMTVAGVYLLGSL 229

RESULT 5
ID 09N1A2 PRELIMINARY; PRT; 233 AA.
AC 09N1A2;
DT 01-OCT-2000 (TREMBLrel. 15, Created)
DT 01-OCT-2000 (TREMBLrel. 15, Last sequence update)
DE 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE ANTI-APOPTOTIC REGULATOR BCL-XL.
GN BCL-XL.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suidae; Suidae; Sus.

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OX NCBI_TaxID=9823;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RA Lee T.L., Canty J.M.;
RT "PCR Cloning of a Porcine bcl-xl cDNA from Heart.";
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF216205; AAF33212.1; -.
DR HSSP; Q07817; IMAZ.
DR InterPro; IPR002475; BCL2_family.
DR InterPro; IPR000712; BCL_2.
DR InterPro; IPR003093; BH4.
DR Pfam; PF00452; Bcl-2; 1.
DR Pfam; PF02180; BH4; 1.
DR SMART; SM00337; BCL; 1.
DR SMART; SM00265; BH4; 1.
DR PROSITE; PS50062; BCL2_FAMILY; 1.
DR PROSITE; PS01080; BH1; 1.
DR PROSITE; PS01258; BH2; 1.
DR PROSITE; PS01259; BH3; 1.
DR PROSITE; PS01260; BH4_1; 1.
DR PROSITE; PS50063; BH4_2; 1.
SQ SEQUENCE 233 AA; 26047 MW; 2FA312818B25E17D CRC64;

Query Match 42.5%; Score 428.5; DB 6; Length 233;
Best Local Similarity 41.3%; Pred. No. 9.9e-30;
Matches 93; Conservative 22; Mismatches 57; Indels 53; Gaps 4;

QY 11 RALVADFYGYRLKRGY-----Y 28
DB 6 RELVYDFLSYKLSQKGYSMQSFVDENRTPEAETFEARETPSAINGNPSMHLADSPAV 65
QY 29 CGAGPEGGPAD-----PLHQAMRAAGDEFEETRRRPSDLAOLHVTGSAOQRT 80
DB 66 NGA-TGHSSSLDAREVTPMAAVKQALREAGDEFELKRRAFSDLSQHLITPGTAYOSFE 124
QY 81 QVSDLEFQGGPMGRVLAFFVFGALCAESYKMEPELVGOVDMVAVYLETRLADIHS 140
DB 125 QVNNLEFRDGVNMGRIYAFFSFGALCVESYKMEQVLSRIATMMATYLDHLEPWIOE 184
QY 141 SGGMAEFTALYGDALAEARLRREG--NMASVRYVLTGAVALGAL 183
DB 185 NGMDTFEVLGYGNNAAESRKGEGRFNRFLTGMTVAGVYLLGSL 229

RESULT 6
ID 09MZS7 PRELIMINARY; PRT; 233 AA.
AC 09MZS7;
DT 01-OCT-2000 (TREMBLrel. 15, Created)
DT 01-OCT-2000 (TREMBLrel. 15, Last sequence update)
DE 01-DEC-2001 (TREMBLrel. 18, Last annotation update)
DE BCL-X LONG PROTEIN.
GN Ovis aries (Sheep).
OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=OVARY;
RA Murray J.F., Dong Y.B., Leigh A.J., Scaramuzzi R.J., Carter N.D.;
RT "Bcl-x in the sheep ovary.";
RL Submitted (JUL-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF164517; AAF89532.1; -.
DR HSSP; P53563; IAF3.
DR InterPro; IPR002475; BCL2_family.
DR InterPro; IPR000712; BCL_2.
DR InterPro; IPR003093; BH4.
DR Pfam; PF00452; Bcl-2; 1.
DR Pfam; PF02180; BH4; 1.
DR SMART; SM00337; BCL; 1.

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DR SMART; SM00265; BH4; 1.
 DR PROSITE; PS50063; BCL2_FAMILY; 1.
 DR PROSITE; PS01080; BH1; 1.
 DR PROSITE; PS01258; BH2; 1.
 DR PROSITE; PS01259; BH3; 1.
 DR PROSITE; PS01260; BH4_1; 1.
 DR PROSITE; PS50063; BH4_2; 1.
 SQ SEQUENCE 233 AA; 26134 MW; 012BFA1382762915 CRC64;

Query Match 42.2%; Score 425.5; DB 6; Length 233;
 Best Local Similarity 40.2%; Pred. No. 1.8e-29;
 Matches 90; Conservative 24; Mismatches 59; Indels 51; Gaps 4;

QY 11 RAIVADVGRRLRKGK-----VCGAGP-----GGSPAA 39
 DB 6 RELVVDLSTKLSQKGSWSQSFVDEENRTDAPGTSMDMTSALINGNPSHMLADSPAY 65
 QY 40 D-----PLHQAMRAAGDEFETRRFSDLAQLHVTGSAOQRTQ 81
 DB 66 NGATGHSRLDAREVIMAAVKAALREAGDEFLRYRRAFSDLTSQHLTPGTAYQSFQ 125
 QY 82 VSDLEFGGPNWGRVAFVFGAALCAESYKKEKPLVGOVDMVAYLETRLADWTHSS 141
 DB 126 VVNELFRDGVNMGRIYVFFSFGALCVESYDKEMQVLVSIAITMATYLDHLEPWIOEN 185
 QY 142 GMAEFTALYGDGALFEARLR--GNMASVRYLTGVALGAL 183
 DB 186 GGMDFEVLIGNMAAESRKQGFNFPLTGMVAGVLLGSL 229

RESULT 7
 ID Q9BDD5 PRELIMINARY; PRT; 180 AA.
 AC Q9BDD5;
 DT 01-JUN-2001 (TREMBLrel. 17, Created)
 DT 01-JUN-2001 (TREMBLrel. 17, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE ANTI-APOPTOTIC REGULATOR BCL-XL (FRAGMENT).
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Bovinae; Bos.
 OC NCBI_TaxID=9913;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Amills M., Bouzat J.;
 RT "Characterization of the bovine bcl-xl gene and related pseudogenes";
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AF245488; AAK31307.1; -;
 DR EMBL; AF245489; AAK31308.1; -;
 DR HSSP; 007817; IMAZ.
 DR InterPro; IPR002475; BCL2_family.
 DR InterPro; IPR000712; BCL_2.
 DR Pfam; PF00452; BCL_2; 1.
 DR SMART; SM00337; BCL; 1.
 DR PROSITE; PS50062; BCL2_FAMILY; 1.
 DR PROSITE; PS01080; BH1; 1.
 DR PROSITE; PS01258; BH2; 1.
 DR PROSITE; PS01259; BH3; 1.
 FT NON_TER 1 1
 FT NON_TER 180 180
 SQ SEQUENCE 180 AA; 20062 MW; 95DC436F95DABDA6 CRC64;

Query Match 39.7%; Score 401; DB 6; Length 180;
 Best Local Similarity 53.5%; Pred. No. 1.8e-27;
 Matches 76; Conservative 19; Mismatches 45; Indels 2; Gaps 1;

QY 44 QAMRAAGDEFETRRFSDLAQLHVTGSAOQRTQVSDLEFGGPNWGRVAFVFG 103
 DB 38 QALREAGDEFELRYRRAFSDLTSQHLTPGTAYQSFQGVNLEFRDGVNMGRIYVFFSFG 97

QY 104 AALCAESYKKEKPLVGOVDMVAYLETRLADWTHSSGMAEFTALYGDGALFEARLR 163
 DB 98 GALCVESYDKEMQVLVSRIATMATYLDHLEPWIOENGMDFEVLIGNMAAESRKQ 157
 QY 164 E--GNMASVRYLTGVALGAL 183
 DB 158 ERFNRFELTGMVAGVLLGSL 179

RESULT 8
 ID Q99N35 PRELIMINARY; PRT; 217 AA.
 AC Q99N35;
 DT 01-JUN-2001 (TREMBLrel. 17, Created)
 DT 01-JUN-2001 (TREMBLrel. 17, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE B-CELL LEUKEMIA/LYMPHOMA X (FRAGMENT).
 GN BCLX.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OC NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN=129/SVJ;
 RC Yang X.-F., Cantor H.;
 RT "Novel CDNA structure and genomic organization of apoptosis regulatory
 RT gene Bcl-x-gamma.";
 RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AF135282; AAK15455.1; -;
 DR EMBL; AF135281; AAK15455.1; JOINED.
 DR HSSP; P53563; IAF3.
 DR InterPro; IPR002475; BCL2_family.
 DR InterPro; IPR000712; BCL_2.
 DR Pfam; PF00452; BCL-2; 1.
 DR SMART; SM00337; BCL; 1.
 DR PROSITE; PS50062; BCL2_FAMILY; 1.
 DR PROSITE; PS01080; BH1; 1.
 DR PROSITE; PS01258; BH2; 1.
 DR PROSITE; PS01259; BH3; 1.
 FT NON_TER 1 1
 SQ SEQUENCE 217 AA; 24234 MW; 3B5A4E809A7DEF18 CRC64;

Query Match 39.7%; Score 401; DB 11; Length 217;
 Best Local Similarity 53.5%; Pred. No. 2.3e-27;
 Matches 76; Conservative 19; Mismatches 45; Indels 2; Gaps 1;

QY 44 QAMRAAGDEFETRRFSDLAQLHVTGSAOQRTQVSDLEFGGPNWGRVAFVFG 103
 DB 72 QALREAGDEFELRYRRAFSDLTSQHLTPGTAYQSFQGVNLEFRDGVNMGRIYVFFSFG 131
 QY 104 AALCAESYKKEKPLVGOVDMVAYLETRLADWTHSSGMAEFTALYGDGALFEARLR 163
 DB 132 GALCVESYDKEMQVLVSRIATMATYLDHLEPWIOENGMDFEVLIGNMAAESRKQ 191
 QY 164 E--GNMASVRYLTGVALGAL 183
 DB 192 ERFNRFELTGMVAGVLLGSL 213

RESULT 9
 ID Q9BDX7 PRELIMINARY; PRT; 180 AA.
 AC Q9BDX7;
 DT 01-JUN-2001 (TREMBLrel. 17, Created)
 DT 01-JUN-2001 (TREMBLrel. 17, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE ANTI-APOPTOTIC REGULATOR BCL-XL (FRAGMENT).
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Bovinae; Bos.

OX NCBI_TaxID=9913;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Amilis M., Bouzat J.
 RT "Characterization of the bovine bcl-xl gene and related pseudogenes."
 RL Submitted (MAR-2000) to the EMBL/Genbank/DBJ databases.
 DR EMBL: AF245487; AAK31306.1;
 DR HSP; Q07817; IMA2.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR000712; Bcl_2.
 DR Pfam: PF00452; Bcl-2; 1.
 DR SMART: SM00337; BCL_1.
 DR PROSITE: PS0062; BCL2_FAMILY; 1.
 DR PROSITE: PS01258; BH2; 1.
 DR PROSITE: PS01259; BH3; 1.
 FT NON_TER 1 180
 FT NON_TER 180
 SQ SEQUENCE 180 AA; 20056 MW; 62C4C0BD055A9EF CRC64;

Query Match 39.6%; Score 399.5; DB 6; Length 180;
 Best Local Similarity 47.1%; Pred. No. 2.4e-27;
 Matches 82; Conservative 23; Mismatches 58; Indels 11; Gaps 3;

QY 20 YRLRQKCYVAGAGPGRPAD-----PLHQMRAGDEFTFRFRFSDLAQLAHT 71
 DB 7 WHLEDSPAVNGA-PGHSRSSDAREVTPMAAVKQALREAGDEFTFRFRFSDLSQHLHT 65
 QY 72 PGSAGRFTVSDLEFGGPNMGRVAFVFGAALCAESVKNKEMEDLVGVODMVAYLE 131
 DB 66 PGTAQGEQVNEFLFDGVNMGRIVASFSFGALCVESYDKEMQVLVSRIATMAFYIN 125

QY 132 TRLADWHSSGGAFFALYGDALREARLRE--GNMNASVRLVGAVALGAL 183
 DB 126 DHEPWIQENGMDTFVELYGNMAAESRKGDERFNRKMTGTAVGVLLGSL 179

RESULT 10
 Q90298 PRELIMINARY; PRT; 238 AA.
 AC Q90298;
 DT 01-DEC-2001 (TREMBLrel. 19, Created)
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE BCL-XL-LIKE PROTEIN 1.
 GN BCLP1.
 OS Brachydanio rerio (Zebrafish) (Zebra danio).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi;
 OC Cypriniformes; Cyprinidae; Danio.
 NCBI_TaxID=7955;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=21299061; PubMed=11406282;
 RA Chen M.-C., Gong H.-Y., Cheng C., Wang J.-P., Hong J., Wu J.-L.;
 RT "Cloning and characterization of zfbclp1, a Bcl-XL homologue from the
 RT zebrafish, Danio rerio(1)."
 RL Biochim. Biophys. Acta 1519:127-133(2001).
 DR EMBL: AF317817; AAK81706.1;
 SQ SEQUENCE 238 AA; 26253 MW; 6E58394933EEFDB CRC64;

Query Match 39.3%; Score 397; DB 13; Length 238;
 Best Local Similarity 35.7%; Pred. No. 5.7e-27;
 Matches 85; Conservative 29; Mismatches 62; Indels 62; Gaps 6;

QY 11 RALVADPVGRLRQKGYC-----GAG----- 32
 DB 6 RELVVFETKYKLSORNPCHNIGLTEDTNRDGAEEENGEAGAATTLVNGTMTNAST 65
 QY 33 --PGSGPADPLHQ-----AMRAGDEFERFRFTFSDLAQLHTVSGSQOR 78
 DB 66 GTPPOSASSPQRQTNSSGGIDAVKALRDSANEFELRTSRAFNDLSQHLHTPATAYOS 125

QY 79 FTOVSDLEFGGPNMGRVAFVFGAALCAESVKNKEMEDLVGVODMVAYLETRLADWI 138
 DB 126 FESVADDEVFRGVNMGRIVGLPFAFGALCVCECKEKSPLVGRVLAEMVTVLNDHIQPMI 185
 QY 139 HSSGMAEFTALYGDALREARLREG--NMA-SVRYTLGAVALGALVTVGAFFASK 193
 DB 186 QSGGMEFRFALPFGDAAESRKSQSEPKKMLPFGMTLLTG-----VVVGGLIAQK 236

RESULT 11
 Q923R6 PRELIMINARY; PRT; 236 AA.
 AC Q923R6;
 DT 01-DEC-2001 (TREMBLrel. 19, Created)
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE B-CELL LYMPHOMA PROTEIN 2.
 GN BCL2.
 OS Cricetulus longicaudatus (Long-tailed hamster) (Chinese hamster).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
 OC Cricetulus.
 NCBI_TaxID=10030;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Lai D.Z., Chen W., Wang H.T.;
 RT "Construction of a robust CHO cell line for biopharmaceutical use."
 RL Submitted (JUN-2001) to the EMBL/Genbank/DBJ databases.
 DR EMBL: AF404339; AAK92201.1;
 SQ SEQUENCE 236 AA; 26500 MW; BEDF052EF32CA8B8 CRC64;

Query Match 39.1%; Score 395; DB 11; Length 236;
 Best Local Similarity 34.9%; Pred. No. 8.5e-27;
 Matches 81; Conservative 33; Mismatches 66; Indels 52; Gaps 3;

QY 9 DTRALVADPVGRLRQKGY----- 27
 DB 10 DNRREIVMKYIHKLSRGYEMDVGDVDAAPLGAAPTPGFSFQPSNPPTAVHROMART 69
 QY 28 -----VCGAGFEGPADPLHQAMRAGDEFERFRFSDLAQLHTVSGSQORFTO 81
 DB 70 SPLRPIVATGPTGLSPVPVHLTLRRADDPSRRYRDFEAMSSQLHTPTTAGRFRAT 129
 QY 82 VSDLEFGGPNMGRVAFVFGAALCAESVKNKEMEDLVGVODMVAYLETRLADWISS 141
 DB 130 VVEELFRDGVNMGRIVAFVFGAALCAESVKNKEMEDLVGVODMVAYLETRLADWISS 189
 QY 142 GGMAEFTALYGDALREARLREGMNASVRYTLGAVALGALVTVGAFFASK 193
 DB 190 GGWDARFVELYG---PSVRPLDFDPSWLSLXTLLNAL--VGACITLGTLYGK 236

RESULT 12
 Q90WX2 PRELIMINARY; PRT; 188 AA.
 AC Q90WX2;
 DT 01-MAY-2000 (TREMBLrel. 13, Created)
 DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
 DE BCL-X (FRAGMENT).
 GN BCL2L.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=20350651; PubMed=10894153;
 RA Rucker E.B. III, Dierisseau P., Wagner K.U., Garrett L.,
 RA Wynshaw-Boris A., Flaws J.A., Hennighausen L.;
 RT "Bcl-x and Bax regulate mouse primordial germ cell survival and

RT apoptosis during embryogenesis.
 RL MBL, Endocrinol. 14:1038-1052(2000).
 DR EMBL: AF088904; AAC72232.1; -
 DR HSSP: P53563; IAF3.
 DR MGD: MGI:88139; Bcl2L.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR000712; Bcl_2.
 DR InterPro: IPR003093; BH4.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 FT NON TER 188
 SQ SEQUENCE 188 AA; 21126 MW; 4E62F8356D248E52 CRC64;

Query Match 36.8%; Score 371.5; DB 11; Length 188;
 Best Local Similarity 42.4%; Pred. No. 7.1e-25;
 Matches 78; Conservative 17; Mismatches 38; Indels 51; Gaps 3;

QY 11 RALVADFGVGRKRGY-----PLHQAMRAAGDEFEFRFRFTSDLAQLHTVPGSAOQRT 80
 DB 6 RELVVDLFLSKLSQKGYMSQFSDVEENRTAEDETEAERETPSAINGNPSMHLADSPAV 65
 QY 29 CGAGPGECPAD-----PLHQAMRAAGDEFEFRFRFTSDLAQLHTVPGSAOQRT 80
 DB 66 NGATGHSLSLDAREVIMAAVKAQALREAGDEFELRYRRAFSDLSLTQLHTPTGTAQSF 124
 QY 81 QVSDLEFQGGPMGRVAFVFGAALCAESVKNKEPVLGVGVODMMVAYLETRLADWHS 140
 DB 125 QVYNELFRGVNMGRIYAFVFGALCVESVDKEMQVLSRIASMMATYLNHLEPWIOE 184
 QY 141 SGGW 144
 DB 185 NGGW 188

RESULT 13
 ID 035843 PRELIMINARY; PRT; 235 AA.
 AC 035843;
 DT 01-JAN-1998 (TREMBLrel. 05, Created)
 DT 01-JAN-1998 (TREMBLrel. 05, last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)
 DE BCL-X-GAMMA.
 GN BCL2L.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OX NCBI_Taxid=10090;
 RN [1]
 RP SEQUENCE FROM N.A.

RC STRAIN=B6/CBA; TISSUE=THYMUS;
 RX MEDLINE=96051053; PubMed=9390687;
 RA Yang X.-F., Weber G.F., Cantor H.;
 RT "A novel Bcl-x isoform connected to the T cell receptor regulates
 RT apoptosis in T cells."
 RT EMBL: U51277; AAC53458.1; -
 RL Immunity 7:629-639(1997).
 DR EMBL: U51277; AAC53458.1; -
 DR HSSP: P53563; IAF3.
 DR MGD: MGI:88139; Bcl2L.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR000712; Bcl_2.
 DR InterPro: IPR003093; BH4.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.

DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS01259; BH3; 1.
 DR PROSITE: PS01260; BH4_1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 SQ SEQUENCE 235 AA; 26122 MW; 649D914C2D3378F6 CRC64;

Query Match 36.8%; Score 371.5; DB 11; Length 235;
 Best Local Similarity 42.4%; Pred. No. 9.5e-25;
 Matches 78; Conservative 17; Mismatches 38; Indels 51; Gaps 3;

QY 11 RALVADFGVGRKRGY-----PLHQAMRAAGDEFEFRFRFTSDLAQLHTVPGSAOQRT 80
 DB 6 RELVVDLFLSKLSQKGYMSQFSDVEENRTAEDETEAERETPSAINGNPSMHLADSPAV 65
 QY 29 CGAGPGECPAD-----PLHQAMRAAGDEFEFRFRFTSDLAQLHTVPGSAOQRT 80
 DB 66 NGATGHSLSLDAREVIMAAVKAQALREAGDEFELRYRRAFSDLSLTQLHTPTGTAQSF 124
 QY 81 QVSDLEFQGGPMGRVAFVFGAALCAESVKNKEPVLGVGVODMMVAYLETRLADWHS 140
 DB 125 QVYNELFRGVNMGRIYAFVFGALCVESVDKEMQVLSRIASMMATYLNHLEPWIOE 184
 QY 141 SGGW 144
 DB 185 NGGW 188

RESULT 14
 ID 09H1R6 PRELIMINARY; PRT; 188 AA.
 AC 09H1R6;
 DT 01-MAR-2001 (TREMBLrel. 16, Created)
 DT 01-MAR-2001 (TREMBLrel. 16, last sequence update)
 DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)
 DE BA243016.1.1 (BCL2-LIKE 1 (ISOFORM 1)) (FRAGMENT).
 GN BCL2L.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 OX NCBI_Taxid=9606;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Brown A.;
 RL Submitted (MAR-2001) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AL160175; CAC10003.1; -
 DR HSSP: O07817; 1XXL.
 DR InterPro: IPR002475; BCL2_family.
 DR InterPro: IPR000712; Bcl_2.
 DR InterPro: IPR003093; BH4.
 DR Pfam: PF00452; Bcl-2; 1.
 DR Pfam: PF02180; BH4; 1.
 DR SMART: SM00337; BCL; 1.
 DR SMART: SM00265; BH4; 1.
 DR PROSITE: PS50062; BCL2_FAMILY; 1.
 DR PROSITE: PS01080; BH1; 1.
 DR PROSITE: PS50063; BH4_2; 1.
 FT NON TER 188
 SQ SEQUENCE 188 AA; 21029 MW; 7074B6095145C324 CRC64;

Query Match 36.6%; Score 369.5; DB 4; Length 188;
 Best Local Similarity 42.4%; Pred. No. 1.1e-24;
 Matches 78; Conservative 17; Mismatches 38; Indels 51; Gaps 3;

QY 11 RALVADFGVGRKRGY-----PLHQAMRAAGDEFEFRFRFTSDLAQLHTVPGSAOQRT 80
 DB 6 RELVVDLFLSKLSQKGYMSQFSDVEENRTAEDETEAERETPSAINGNPSMHLADSPAV 65
 QY 29 CGAGPGECPAD-----PLHQAMRAAGDEFEFRFRFTSDLAQLHTVPGSAOQRT 80
 DB 66 NGATGHSLSLDAREVIMAAVKAQALREAGDEFELRYRRAFSDLSLTQLHTPTGTAQSF 124

QY 81 QVSDLEFGGPMKGRVAFVFGALCAESVKNKEPELVGOVDMVAVLETRLDWTHS 140
 DB 125 QVYNELFRDGVNMGRIVAFVFGALCVESVDEKEMQVLSRIAAMATYTLNDHLEPWIOE 184
 QY 141 SGGW 144
 DB 185 NGGN 188

RESULT 15

090ZH2 PRELIMINARY; PRT; 204 AA.
 AC 090ZH2;
 DT 01-DEC-2001 (TREMBlrel. 19, Created)
 DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)
 DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)
 DE BCL-XL.
 GN BCL-XL.
 OS Xenopus laevis (African clawed frog).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidoidea; Pipidae;
 OC Xenopodinae; Xenopus.
 OX NCBI_TaxID=8335;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Nakajima K., Yaoita Y.;
 RT "Muscle cell death occurs in the regressing tail of tadpole by a
 suicide mechanism.";
 RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AB055494; BAB62748.1;
 SQ SEQUENCE 204 AA; 23189 MW; 1BEF1B904E29D84A CRC64;

Query Match 36.5%; Score 368; DB 13; Length 204;
 Best Local Similarity 42.3%; Pred. No. 1.6e-24;
 Matches 82; Conservative 24; Mismatches 64; Indels 24; Gaps 4;

QY 10 TRALVADFVGYRLRO-----KGYVCGAGPGGP---ADPLHOAMRA 48
 DB 5 SRDLVEKFFVSKLSONDACRKFSSNPNPNAISMGTSERPGGATOGIVEEVLQALL 64
 QY 49 AGDEFETRFRRTFSDLAQLHTVPGSAOQRTQVSDLEFGGPMKGRVAFVFGALCA 108
 DB 65 ATEFEFLRYGRASDLTSQHTQDTAQOSFQGVNGELFRDGTNMGRIVAFVFGALCV 124
 QY 109 ESNVKNKEPELVGOVDMVAVLETRLDWTHSSGNAEFTALYGDALFEARLRE--GN 166
 DB 125 ESANKEMTDLLPRIVOMVAVLEHTLQPMWQENGWEAFVGLGKNAQAQSRERFGR 184
 QY 167 WASYFVLTGAVAL 180
 DB 185 LRTI-VMLTGVFAL 197

Search completed: June 10, 2002, 10:31:19
 Job time: 392 sec

